
Communities of Practice: The Construction of Knowledge in a Research Group

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Abstract:

From the 1990's onwards, a substantial volume of literature had been published about community of practice (CoP) and many scholars had been investigating their existence and the effectiveness in a variety of settings. In this scenario, this study aims at investigating whether the construction of the knowledge of a PhD research group occurs in the form of a CoP. Using the conceptual approach proposed by Wenger (1998) as an analytical basis, the present study combined multiple investigation methods, namely participant observation, analysis of the content of social media, interview, and questionnaire. Data collected was registered in field diaries which were subsequently analysed (Bardin, 2011). Results indicate that members construct their knowledge in a collaborative and cooperative way. The dimensions proposed by Wenger (1998) to identifying and distinguishing CoPs from other groups were present in the group. The conclusion is that the investigated research group can be classified as a CoP.

Keywords: Practices; Communities of Practice; Learning; Research Groups.

Comunidades de Prática: A Construção de Conhecimento em um Grupo de Pesquisa

Resumo:

A partir da década de 1990, um volume substancial de literatura foi publicado sobre comunidades de prática (CP) e muitos pesquisadores investigaram sua existência e a eficácia em uma variedade de contextos. Nesse cenário, este estudo tem como objetivo investigar se a construção do conhecimento de um grupo de pesquisa de doutorado ocorre na forma de uma CP. Utilizando a abordagem conceitual proposta por Wenger (1998) como base analítica, o presente estudo combinou vários métodos de investigação, como observação participante, análise do conteúdo das mídias sociais, entrevista e questionário. Os dados coletados foram registrados em diários de campo que foram posteriormente analisados (Bardin, 2011). Os resultados indicam que os membros constroem seus conhecimentos de forma colaborativa e cooperativa. As dimensões propostas por Wenger (1998) para identificar e distinguir CPs estavam presentes no grupo pesquisado. A conclusão é que o grupo de pesquisa investigado pode ser classificado como uma CP.

Palavras-Chave: Práticas; Comunidades de Prática; Aprendizagem; Grupos de Pesquisa.

Communities of Practice: The Construction of Knowledge in a Research Group

1. Introduction

'Community of practice' (CoP), despite being a term of relatively recent coinage, the 'phenomenon it refers to is age-old' (Wenger, 2010). By definition, a CoP is a group of people who engage in the action of collective learning in a shared interest, for instance a tribe learning to survive, a group of writers exploring new writing techniques, a group of students learning a challenging academic subject (Wenger, 2010; Takimoto, 2012). These people interact frequently and put a lot of effort to keep the group together (Wenger, 2010; Takimoto, 2012). The concept of a CoP is rooted in the attempt of providing a social explanation to human learning, based on anthropology and social theories (Wenger, 2010).

From the 1990's onwards, a substantial volume of literature had been published about this particular and many scholars had been investigating the existence and the effectiveness of CoPs in a variety of settings, such as organizations and professional associations (Lave & Wenger, 1991; Wenger, 1998; Brown & Duguid, 2000); Government (Chohan, 2013), education (Grossman, 2001; Kimble et al., 2008; Nistor et al., 2012). Moreover, participation in CoPs has been proven beneficial with regards to the 'accumulation of experience, the stimulation of the social construction of knowledge and the development of expertise, which makes it interesting for educational research on formal learning' (Buckley et al., 2015; Boylan, 2010; Nistor et al., 2012). A possible explanation to the positive outcomes of CoPs was already indicated by Wenger (2010) who has stated that the process of knowledge acquisition encompasses social interactions that go far beyond the student/teacher relationship.

Even though CoPs are increasingly emerging in Brazilian schools, universities and research institutes, very little literature has been published about this particular. Moreover, in general lines, education in Brazil still operates on the assumption that learning is an individual process best encouraged by explicit teaching, rather than from the interaction among students and other members outside the education institutes.

In this scenario, the general objective of this study is to analyze whether the construction of knowledge of a PhD research group in Administration, belonging to a Brazilian university, occurs in the form of a community of practice. The present study is theoretically-empirically justified and will be presented in the form of a case-study (Morgan & Smircich, 1980) by portraying the different forms of construction of knowledge in a group of studies in the academic (*stricto-sensu*) environment. Through the analysis of this object of study, there is room left for the understanding and re-signification of learning and whether the study group can be classified as a CoP in contrast with other types of groups.

The understanding of the construction of knowledge in a group of studies belonging to a community institution might reveal alternative forms of learning that can be replicated in other educational contexts and promote learners' autonomy. Learners' autonomy is an asset especially valuable for those students originating from educational systems in which the provision of education is unsatisfactory, which is the case of Brazil.

This study departs from the assumption that a research group *stricto-sensu* can turn into a CoP in order to construct a shared knowledge. Therefore, the present empirical research aimed at revealing the existence of a CoP in the investigated group in the light of the theories proposed by some scholars. The understanding of CoPs has passed through changes as the time goes by. Wenger's idea of "cultivating communities of practice" will enable the introduction of other characteristics that have greater integration with the CoP researched, beyond those expressed in this study. In addition to this introduction, the present study builds a theoretical framework

based mostly on the work of Wenger – who together with Lave (1991) has first proposed the concept of CoPs – followed by the methodology, the analysis and discussion of the results, and the final considerations.

2. Theory of Social Practices and Communities of Practice

Analysing social phenomena from the perspective of practice seems to be the most appropriate way of understanding reality as it is – given that it provides insights not only on how something was said or done, but also on how people organize their sayings and doings, showing the reality of what happens in the daily practice. The simply understand of what has been done or the simulation of what can be done does not correspond to what actually happens. An understanding, through the epistemology of practice (the mode of access of reality is given by practice as a unit of analysis), requires much of the researcher and, for this, Schatzki (2012) brings a set of elements that guide the look, providing subsidies that enable to direct the research.

However, the complexity of factors and dimensions that are involved in this approach requires the researcher to have a broader and deeper understanding of complex concepts of social research. Such complexity, refers to the ontology of social practice which presupposes that the context (the locus of the social and human coexistence) is composed of a network of connections (nexus) of practices and material arrangements, from which, and in which, human coexistence (social order) unfolds. It is this network (the locus of the social/context) that entities the (human and nonhuman) act, relate, position one against the other and gain meaning and identity. In this sense, the practices-material arrangements network is conceived as the place where human life happens (Schatzki, 1996, 2002, 2003; Santos & Silveira, 2015).

For Wenger (2000) learning is an integration of social skills and personal experiences. It is a dynamic two-way relationship among people and the social learning systems in which they participate. It combines personal transformation with the evolution of social structures. It is possible to notice in this case that learning through its historical and social conception, comprises the integration of experiences and the knowledge acquired through the variation of these relations, on the social competence and personal experience of individuals (Wenger, 2003).

Such learning, becomes to be understood as an inherent element of social practice, generating new meanings and identity construction from learning, as the transmission of knowledge happens from practical experience (Handeley et al., 2006). Nicolini and Gherardi (2003) emphasize that learning in the context of practices takes place from a world of relationships, which resembles a network connected by heterogeneous elements and linked by the organization of the normative set of mental states that make up the practice.

Lave and Wenger (1991) have already sought to demonstrate that learning and knowledge conducted informally and developed in practical activities are or are closely linked to learning and knowledge beyond the psychological conception (eminently cognitive nature), but they must also be considered attributions and peculiarities of sociology (where knowledge and learning occur through social interactions). Learning and knowledge can be diffused beyond the pedagogical processes established in the student-teacher interaction in the classroom, but “it happens in a way situated in informal practical actions that occur through legitimized peripheral participation (PPL)” (Mendes & Urbina, 2015).

2.1. Wenger’s Proposal of CoPs and its Dimensions

When defining CoPs as groups of people who ‘share a concern or a passion for something they do and learn how to do it better as they interact regularly’, Wenger (2015: 1)

highlighted the fact that this interpretation ‘allows for, but does not assume, intentionality’. In other words, learning can be the ultimate reason why people form a CoP or an ‘incidental outcome of their interaction’. Moreover, ‘not everything called a community is a community of practice’ (ibid). Wenger (ibid) illustrates this statement with the example of a neighborhood. A neighborhood is usually called a community, but it is unlikely a CoP. Bringing this idea to the object of our investigation, we can state that a PhD research group in Administration – which came together due to the requirements of the university – is a community. However, we wondered whether this group could be classified as a CoP.

In order to tackle the issue of identifying CoPs among other communities, Wenger (ibid) suggests that researchers should look for three main characteristics, namely: the domain, the community, and the practice. ‘The domain’ is defined as the shared interest of the group. According to Wenger (ibid), membership ‘implies a commitment to the domain’. In seeking after their interest in their domain, members take part in joint discussions and tasks, help one another, and share information. They assemble connections that empower them to gain experience and learn from one another – they care about their remaining with each other. This network of interactions is understood as ‘the community’ (ibid). Finally, ‘the practice’ refers to the development of a common repertoire of resources, which takes time and sustained interaction. For Wenger (ibid), it is the combination of these three components that establishes a CoP. Also, it is by building up these three components in parallel that one develops such a community.

According to Wenger (1998) CoPs are valuable environments of negotiation, learning, meaning, and identity. The author (1998) distinguishes three dimensions of the relation by which practice is the wellspring of coherence of a community. At first, the members of the group interact with each other, establishing rules and relationships. Subsequently, the members of the group develop bonds with each other by a comprehension of a feeling of joint endeavor. At last, after some time, members of the group create a common repertoire of resources, which can include routines, language, artifacts and stories.

It is important to highlight that the existence of a CoP may not be evident to its members because, as Wenger (1998) suggests, ‘a community of practice need not be reified as such in the discourse of its participants’. In any case, the author argues that a CoP displays a number of characteristics, such as those described in the table below (Table 1).

Table 1. Characteristics of CoPs

Sustained Relationships	Members are constantly putting effort to keep the community together.
Problem Solving	Members interact in order to brainstorm ideas
Requests for Information	There is a rapid flow of information whenever members are faced with a challenge.
Seeking for Experience	Members access the knowledge of one another in order to gain experience.
Reusing Assets	Members often reuse artifacts produced by other members of the group.
Coordination and Synergy	Members know what others know, what they can do, and how they can contribute to an endeavor. Moreover, there is usually a very quick setup of the problem to be discussed.
Shared Language and Discourse	Members often use jargon and shortcuts to communication as well as the ease of producing new ones. Moreover, there is a shared discourse reflecting a certain perspective on the world.
Peripheral Participation	New members move from the periphery to a position of full participation as they develop their knowledge and learn from skilled practitioners.

Source: Wenger (1998) and Roberts (2006).

Along with the dimensions, we considered the characteristics describe in the table above (Table 1) crucial to distinguish CoPs from other communities and groups of people. The

decision of using Wenger's proposal as the analytical framework for our investigation is because it suggests moving to a new model of learning which should be informal through social interaction, rather than by explicitly teaching. Other scholars have purposed different approaches to investigate CoPs. Brown and Duguid's (1991), for instance, aimed at revealing how informal groups gather in order to improvise solutions to problems, when canonical accounts of work break down. Their work, however, was more focused on the generation of solutions to novel problems and less on the reproduction of existing knowledge and the construction of collaborative learning, which is behind your desire to investigate this PhD research group in Administration.

It is relevant to cultivate communities of practice, through continuing studies in research groups. Wenger (2004) points out that the combination of domain that provides a common focus, the community that builds relationships that enable collective learning and the practice that anchors the learning of what people do, allows Cops to manage knowledge.

3. Methodology

This section describes the methodology applied for analyzing whether the construction of knowledge of a PhD research group in Administration, belonging to a Brazilian university, occurs in the form of a community of practice. The following sub-sections detail the subjects, design and procedures of this study.

Subjects

Participants selected for this study represent the potential members of a community of practice. The investigated sample was composed of professors (2), PhD students (4), MSc students (3), and a PhD researcher (1). Altogether there were 10 participants. Most members of the group belonged to the same institution – a community university in the state of Santa Catarina, Brazil. However, the group was opened to external collaboration. Two of the three MSc students were from a university in the state of Ceará, Brazil; one of the four PhD students was from a university in the state of Paraná, Brazil and another one from a university in Italy. Finally, the PhD researcher, also an external collaborator, was from a university in Spain.

Unlike what most literature suggests about CoPs, this group was not formed spontaneously. Participating in a research group is part of the PhD program for all subjects at community university, not only for Administration. However, because the coordinator of this group, especially, is a theorist in education and collaborative learning it presented some unique characteristics which made it worth of investigation. For instance, according to community university program requirements, PhD research groups are due to meet at the university once a month in order to present their research.

In each meeting, one of PhD students communicates his/her research to the group, while the group coordinators (usually Professors) make comments suggestions about the work presented. These meetings are exclusively in person and only group coordinators are expected to comment on students' research. According to the university the objective of these meetings is twofold: to make sure that PhD students are provided with constant specialist feedback, and to ensure that the students improve their communication skills.

Even though the investigated group was formed to meet the standard requirements of the university program, some of the procedures adopted by them make them differ from other PhD research groups. For instance: meetings can happen not only in person but also in the cyberspace; not only the professors but all members are welcome to comment and make suggestions about other members' research; participation in the group was not restricted to the students of community university – the group was opened to external collaboration (from across

the country and international). The Table 2 summarizes the main features that can possibly make the investigated group differ from other PhD research groups from the same institution.

Table 2. Differences between standard PhD research groups and investigated group

Topics	PhD research standard groups	Administration PhD research group (investigated group)
Meetings	In person;	Both in person and in the cyberspace;
Frequency of interaction	Fixed (restricted to the monthly meeting);	Flexible (besides the monthly meeting, members use the cyberspace to meet whenever they want it);
Participation	Restricted to PhD students and professors from community university;	Opened to MSc and PhD students and professors from community university and other educational institutions;
Knowledge acquisition	Presumably by teaching and observation;	Presumably by teaching, observation and peripheral participation;
Role of the group leader(s) (professors)	To teach the student members of the group, to propose and coordinate the activities;	To guide the student members of the group, to suggest and mediate the activities;
Role of the group members (students)	To observe and learn from the group leaders;	To observe, contribute and learn from all group members;
Responsibility of ensuring the union of the group	Of the group leader(s).	Of all group members.

Source: Research data (2020).

Design and Procedures

The investigation from which this paper derives was qualitative and exploratory in nature and combined multiple research methods, namely: participant observation, analysis of the content of social media, interview and questionnaire assessment (Berg, 2009). The main method, however, was participant observation. Analysis of social media, interviews and questionnaire were secondary methods which were only included in this investigation into provide a complementary overview to the participant observation – whether by endorsing or denying the researcher’s impressions (Van Maanen, 1982).

Participant observation was chosen as our main investigation method because it enables researchers to become familiar and intimate with the group itself and with the activities and practices of its members. By engaging with the group, researchers can take a close look and gain better insights about the profile of the members and the dynamics of the group (Spradley, 1980). Participant observation was performed by a final year PhD student who joined the group in order to examine the behavior of the participants and the group dynamics. According to Morgan (1989), the organizations and organizational structures, the social roles of group members, their distinct normative values and yet similar attitudes, can be a fruitful source of data to an observer researcher.

Apart from the group leaders, members of the group were unaware that one of the members was conducting an investigation. The reason for not disclosing this information was that we believed that it could inhibit some behaviors and interfere in the natural dynamics of the group. Due to ethical requirements, however, the group leaders had to be informed of the investigation. Therefore, the ‘infiltrated’ observer became part of the situation that was being observed. His participation in the group, however, could be described as passive. Even though he engaged in all the activities and discussions of the group, he made sure not to do anything that could interfere in the group dynamics and, therefore, compromise the findings of this investigation. Among other things, the ‘infiltrated’ member observed the verbal and nonverbal behavior of the group members, the environment, the content of the notes that they took during

the different types of activities, such as work presentations, discussion sections, video/audio conferencing.

As suggested by Godoy (1995), in using this method the qualitative researcher does his/her fieldwork through direct observation, spending a great part of his/her time at the research site, in direct contact with the investigated subjects – which has been proven very effective in terms of understanding the investigated object from the perspective of the investigated subjects. In addition to the observation, group leaders were interviewed. There were at least two main objectives behind conducting these interviews: learning whether the impressions of our volunteer observer would match those of the leaders; and, more importantly, whether the aspects that make the Administration PhD research group differ from other PhD research groups in the same institution were intentional.

In other words, if the features that propelled this study, by making us believe that this group could be classified as a CoP, were deliberately induced by its leaders or if they were simply an incidental outcome of the synergy of its members. The purpose of analyzing the content of the social media (Facebook and WhatsApp), was to learn whether the interaction and the share of information among group members would go beyond the compulsory monthly meetings. Finally, all group members were assessed with a semi-structured questionnaire that aimed at gathering data on their impressions about the group. Following Godoy's (1995) methodological approach, field diaries were developed during the stages of this research participant observation, social media analysis, and interviews.

Findings presented in the following sections result from the analysis of the data collected by means of the four methods described in the previous paragraphs. However, we focus our analysis on the observation of the research member. Data obtained through the adjacent methods used are only briefly described, given that their main purpose is to lend credibility to the observations of our researcher. Even though participant observation is a credible research method, studies that adopt this practice need to include other data sources. That is because, even a carefully detailed observation record, is not sufficient to understand all phenomena related to the investigated object (Denzin, 1978). The analysis of the data collected in all the stages of the research, from the elaboration of the field diaries and transcription of other primary data, was carried out by content analysis (Bardin, 2011).

4. Data Analysis

The main results the investigation, conducted between August and December 2016 with the Administration PhD research group, are described in this section. As previously mentioned, different techniques of data collection were used to bring different perspectives regarding the same investigated object. Participant observation was the main method for data collection. Analysis of the content of social media content, interviews, and questionnaire were methods employed to support and lend credibility to the impressions of our observer. Reminding that one of our researchers played two roles in the investigated group: of member and of 'infiltrated' research investigator.

4.1. Participant Observation: Analysis from field diaries

In the first meeting analyzed, which was held on the 25th of August 2016, a volunteer researcher and professor, retired from a Brazilian state university, joined the investigated group. The reason she became a group member was to meet the requirements of a productivity project on entrepreneurship, fostered by CNPQ (The Brazilian National Council for Scientific and Technological Development), which she was engaged with. After presenting her research, by

expressing their opinions and giving suggestions, all group members joined a discussion to contribute to her investigation.

One of the group leaders, also a female professor, questioned the methodology applied in her study, and suggested a better triangulation of objectives and methods. The exact words of the group leader were: “I think the method is not the most appropriate to achieve your goals”; “I suggest using multiple case-study methods”. She claimed to have taken all advice into consideration and accepted most of the suggestions. In exchange, the group made a commitment to help her at all the stages of her study; from the development of the project and application of the research to the analysis of the data collected. Members have also made important contributions regarding the methodology of the research presented.

There was a brainstorming about different techniques of data collection, sample and sample saturation. In this situation, it was possible to observe what was yet inferred by Nicolini (2013) who advocates that belonging to a CoP implies acknowledging that to learn and gain expertise one must be open and willing to both help and being helped. It is through this exchange process that group members establish relationships and enforce their bound, making the CoP an environment of interpersonal relationships. In this same meeting, group members discussed the MSc and PhD research projects of the members who were expecting their Annual Progress Review (APR). Besides of communicating their research, these members shared their anxieties about this evaluation.

At the meeting held on the 9th of September 2016, the group leaders encouraged the other members to participate in the Brazilian Conference of Organizational Studies, a national event focused on the themes related to collaborative learning and information sharing. Each group member wrote his/her own paper to submit. However, all group member helped each other by giving ideas, suggestion, and helping with the academic writing. The group managed to get three articles were approved. Group leaders have also notified other members about the existence of a colloquium, organized by EGOS (European Group of Organizational Studies), in Athens – in which, one of the leaders have presented a paper. The leader reported her experience in detail, resulting in a discussion in which information about the most effective ways of research communication (both written and oral) were shared.

In addition to presence of our ‘infiltrated’ observer, two of the authors of this study participate in the meeting held on the 11th of November 2016. Their goal was to interview the leaders to provide us with a complementary perspective to better understand the dynamics of the group. According to one of the leaders, when she returned from her postdoctoral fellowship in Spain, she brought with her a substantial knowledge on how study groups can, by means of mediate interaction, contribute to the learning process. Since her return to Brazil, she has been working on ways of ensuring that students engage in the process of collective learning, by making them joining study groups, not only at the university library but also using the cyberspace (Facebook, WhatsApp and Skype).

According to her, cyberspace can break geographic barriers and make the learning process an intercultural experience. In the case of the investigated group, cyberspace has enabled the participation of the members from across the country and overseas. Given that one of the main features that characterize CoPs is members’ desire and effort to sustain their union and interaction (Wenger, 1998), the advances brought by the internet and social media are worth of exploring. These media offer the possibility of real time communication, facilitating the access and share of information, and prompting knowledge acquisition.

Aiming at taken advantage of the cyberspace, group members have created a community web-page on Facebook, opened exclusively to the Administration PhD research group. The

objective of its creation was boosting and speeding the share of information, research files, tips, suggestions, and also facilitating the schedule of the meetings. However, this virtual community was not joined by all group members. Even though Facebook is one of the most popular social medium worldwide, three group members were not familiar with its use. Moreover, the leaders were among those who did not join it.

As a communication channel, WhatsApp has been proven very efficient given that it was widely accessed by the entire group (leaders and members), who felt confidence to share their knowledge this environment. These findings endorse those of Cox (2005), who claimed that even though the cyberspace is not conditional to the emergence and maintenance of CoPs, there is no doubt that its advances are beneficial in terms of sustaining their interaction. Members started helping each other, brainstorming to tackle research issues, sharing information about meetings, conferences and publications in their field of interest.

Due to the large amount of information shared, the technique used to collect data was retracing and recording members' shared text and audio messages – which was not only helpful to this study, but also to all members, who ultimately had at their disposal a sort of 'collection' of information and guidelines. Members' positive receptiveness to this model can be evidenced by participation and engagement in the meeting held both cyberspace and 'in person'. Besides, not interfering in the dynamics of the group, WhatsApp facilitated members' interaction and taking the group to beyond the university walls.

4.2 Impressions from Questionnaire

Members assessed through questionnaire were: the external PhD student [Spain] (E1); one of the MSc students (E2); a first year PhD student (E3); a final year PhD student (E4). Their responses to some questionnaire items can shed a on some variables that distinguish CoPs from other groups, for instance: meaning, identity, practice, community of practice, structure (table 3).

Table 3. Group meaning: Learning from experience

Item	Most frequent impressions
Participation (integration) with other members	E1 - "I feel completely integrated, despite the geographic distance [Spain]". "After presenting my project to the group through Skype, everyone congratulated me for sharing my experience". E2 - "I feel that the relationships among members are friendly and respectful". E3 - "Eventually, I felt overwhelmed by the great number of unhelpful comments, but my relationship with other members was always friendly". E4 - "I feel that my knowledge is valued when I contribute to the discussions. I feel like I belong; I am part of the group".
Productions resulting from the participation in the group	E1 - "I manage to get one article published and another to be published in important journals of my field. I have also had the chance to attended to two conferences, a national and an international".
Prospects	E1 - "I think we should better understand qualitative research given that I believe it can contribute to everyone's learning process". E2 - "It was helpful in terms of delimitating my research topic". E4 - "It opened my eyes to the importance of building research networks".

Source: Research data (2020).

With regards to meaning, the group contributed to the construction of the knowledge of its members, along with the opportunity that members had the share, practice and reinforce their previously acquired skills and knowledge. In other words, to its members, the group was an opportunity to share, discuss and test their knowledge and skills to get better prepared to the world. With what concerns members' sense of integration (belonging), there was no consent

about the benefits of the group. Possibly due to the age gap of its members (from first year MsC students to retired professors), not everyone felt included or comfortable.

Some members reported feeling intimidated by others' knowledge and experience; and stressed the fact that despite of combined efforts of the group only members with the highest education degrees have authored a paper that (at least informally) had the collaboration of everyone. Some members have also reported having low expectations about the future of the group. According to them, the creation of the group and the union of its members were much more related to meeting the requirements of the university program than to build a network of collaborative knowledge. This perception was limited, however, to the members of community university.

The external collaborators, from other states and overseas, had a very positive opinion about the group and were willing to put a lot of effort to sustain its union and interaction. To Mendes and Urbina (2015), meaning encompasses learning through experience, which in addition to the psychological (cognitive) conception incorporates sociological conceptions (learning by social interactions).

The impressions of the investigated group suggest, indeed, that learning and knowledge acquisition can exceed the barriers of the classroom walls and go beyond the teacher/student relationship (Table 4).

Table 4. Group identity: learning by being or becoming

Item	The most frequent terms
Previous experience and contribution to the group	E1- "I had the experience of studying in Spain, where, unlike in Brazil, PhD students are expected to write their thesis prior to writing papers. Publications are usually submitted after the conclusion of the PhD. According to the group leader, this is should be the standard procedure." E2- "My professional experience allied to the theoretical background that I have gained during the course". E4 - "Given that I have been working as a teacher for many years, my experience with regards to conducting a research is much more practical than theoretical".
Interaction with other group members	E1- "The interaction was not only professional, I made friends with everyone, and I am in touch with all through WhatsApp." E3- "My closest interaction with other members were at the 'in person' meetings". E4- "My relationship with the other members was strictly professional. The use of the cyberspace was restricted to the sharing of information about the meetings".
Self-image as a member of the group	E1- "I feel myself as a part of the group, but at the same time as a guest. It's a nice relationship". E2- "As an apprentice, at every meeting I was always learning something new". E3- "Observer position". E4- "I try to learn and at the same time contribute with colleagues".
Relationship of group with other communities	E1- "I think this relationship is big and strong... people from many sides... different experiences". E3- "I do not think it is a strong point, there should be more interchange and interaction, in other groups and congresses". E4 - "Unfortunately the technological problems prevent more interaction with online groups".

Source: Research data (2020).

In constructing the identity of the CoPs, members' previous experiences did not strongly interfere with the dynamics of the group, and there was no evidence that such knowledge served to build members' knowledge. The interaction among members reveals respectful and professional relationships. The student from Spain was the only member who perceived the group as an affective environment, which raises question the question of to what extent affective relationships are fundamental to the learning process.

This finding lines up with what Lave and Wenger (1991) suggested regarding legitimized peripheral participation; in which the learning process is constructed by the engagement of members with different professional and academic profiles. The interrelationships with other groups are hampered by technological impasses, which could have an extended meaning as these problems are remedied (Table 5).

Table 5. Practice in groups: Learning by doing

Item	The most frequent terms
Preparation and Group Meeting Routines	E2- "I believe that punctuality was an issue and that the work guidelines were not always followed." E4- "I do not have knowledge about this".
Group learning	E1- "Even considering the geographical distance (Spain) and with my limitations, the group works well." E2- "Since I was just starting my course, my participation was more restricted to the annotations of what was being discussed in the group for its future application. It was not difficult." E4 - "The guidance and tips about the projects of my colleagues were useful to my own research. This was productive."

Source: Research data (2020).

The practice of meeting routines is perceived negatively by the fact of not meeting the agenda. The work guidelines were often abruptly changed, which along with the group members' lack of knowledge of this practice, characterize this variable. However, the perception of group learning was highly positive. Despite of issues like the geographic distance, a learning curve was perceived by all members, including those with little experience in research.

From the characteristic of the regional diversity of the study group participants, it was necessary to contextualize the conception of a CoPs from a broader concept because it is "a structure for thinking about learning in its social dimensions", observed from "a perspective that locates learning, not in the head or abroad, but in the relationship between the person and the world" (Wenger, 2010). This relationship between the person and the world, in the case analyzed, is concretized in the different experiences lived by the participants in the different contexts inserted, such as: student from Italy, student from the northeast of Brazil, etc. The feasibility of remote communication implemented by the group leader made this experience possible, which contributed to the generation of knowledge in the study group.

The network of informal co-orientations and project discussions was reported as beneficial by all members. Mendes and Urbina (2015) concluded that the concept of CoP is always linked to informal aspects, even when seen from the perspective of the organization, having as main characteristic members' shared interest about a topic or domain, which is revealed by their interest to learn (Table 6).

Table 6. Community of practice: Learn by being part of the group

Item	The most frequent terms
Motivation to participate in the group	E1- "Very motivated. The knowledge is great, at least in the work opportunities that I had". E2- "Always motivated, because I was always learning something new and I could have the notion of how the research could be conducted". E4 - "At non-mandatory meetings, the greatest motivation was when I would present my own research".
Frequency of group meetings	E1 - "I do not know, because I have not attended all meetings". E4- "The organization was confusing, but the periodicity was good".
Relationship with other communities	E2- "There was not, perhaps because the period in which I participated in the group was short".

Source: Research data (2020).

The search for knowledge is one of the reasons why students joined the group. Group's sense of belonging, which was evidenced and verified through the interviews with the leaders, participant observation, and responses to the questionnaire, are similar to Wenger's (2006) traditional definition of CoP. To him, CoPs are groups of people 'who share a concern or a passion for something they do and learn to do it better as they interact regularly'. Findings presented in this section indicate that the investigated group, the Administration PhD research group, can be classified as a CoP.

To conclude the different levels of analysis proposed in this study, it was observed that the characteristics of CoPs perceived in the actions of the members participating in the research group of the analyzed doctoral program, indicates that collective learning is possible and that the exchange of experience happens even at different levels of education, such as undergraduate and doctoral students. It was found that the characteristics of CoPs in the group are indications that the network study promotes knowledge. Studying the characteristics of CoPs in relation to the activities of the members of the study group corroborates to certify that collective learning is possible through the sharing of knowledge of the members.

5. Discussion and Final Remarks

This article aimed at analyzing whether the construction of knowledge of a PhD research group in Administration, belonging to a Brazilian university, occurred in the form of a CoP. To achieve our goal, we based our investigation on the traditional theories proposed by Wenger (1998, 2000, 2006, 2015), which included the concepts of meaning, identity, practices and community of practice.

First, we identified the main characteristics of the investigated group. We determined that the heterogeneity of the profile of its members – different levels of education, cultural background and age gap – could be a strong bound element for the group, given that such diversity usually prompts the collaborative learning. We have also identified members' shared interest of improving their research projects as their motivation to learning and keeping the group together. By combining participant observation with social-media analysis, interviews, and questionnaire assessment, we could observe the informal construction of a common knowledge on multiple occasions; corroborating Lave and Wenger (1991) regarding their view of knowledge acquisition through social and informal interactions.

The analysis of members' interaction through social media, enabled us to get some insights about the dynamics of the group. From the content the posts, it is possible to identify moments of experience exchanging and information sharing among members aiming at contributing to the academic and intellectual progress of the group as a whole. The advances brought by the social-media, such as the practicality and the speed of information sharing, were highly valued by the group and enabled cross-country and overseas interaction. It shows a sense of belonging – which corroborates Wenger's (1998) theories.

Borrowing concepts from the social theory of learning to his theory of CoP, Wenger (ibid) identified different dimensions in the construction of a collaborative knowledge of a CoP, namely learning by: belonging, doing, experience, and becoming. Findings extract from our data suggest that the dimensions proposed by Wenger are present in the investigated group. Through questionnaire, members reported being happy to be part of the group (learning by belonging).

Reports of participant observation attested members': joint efforts to write research articles and proposals (learning by doing), will to take advantage of the knowledge of the more experienced members to improve performance (learning by experience), joint effort to write

and publish articles, uniting the experience of the professor [leader] with the motivation and passion of the post-graduate students (learning by becoming). The dynamics observed in the investigated group support Wenger's (2001) concept of CoP, given that all members had the opportunity to negotiate and purpose activities of common interest, making the construction of knowledge not only collaborative, but also democratic.

To sum up, based on Wenger's theories about collaborative learning and CoPs, our research findings suggest that the Administration PhD research group can be classified as a CoP. This investigation has, however, its limitations. The design of this study and the duration of the investigation does not allow for stating, for instance, whether the union of the group and members' active participation resulted from their genuine desire to build a collaborative learning net-work or simply to make the best of a situation that was compulsory established by the university program. We believe that the formation of CoPs can bring learning benefits to students at all levels and institutions.

The negotiation of meanings between the members of the research group analyzed was built from learning based on reflection on practice and interaction on a common basis, and the concept of CoPs itself brings this convergence between theory and practice. Another point to be highlighted is the social character of learning in the CoP environment, whether face-to-face or virtual. The contribution of the study aims to raise reflections from the CoPs and the dynamic relationship of participation in this modality. CoPs become inspiration for researchers in the area and, therefore, this study did not have the conclusive objective of forming CoPs in study groups, but its main focus is to propose the continuity of other empirical research, being another step towards understanding the formation of CoPs.

Moreover, we believe that in countries like Brazil, in which the provision of education is known to be insufficient, CoPs can prompt knowledge acquisition and learners' autonomy. In a country like Brazil, where the transfer of knowledge is hierarchically done by explicit teaching, CoPs can arise as a new, effective, and low-cost alternative to the traditional method. We, therefore, invite investigators to study CoPs in other educational environments and using different methodologies than those presented in this paper, so that, maybe, by joining our efforts, we improve the education worldwide.

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