Knowledge construction in the community of fishing women in the region of Guaraqueçaba – PR

A construção do conhecimento nas comunidades de mulheres pescadoras da região de Guarapuava – PR

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ABSTRACT: In the knowledge dynamics, women's craft communities form a great *ba: knowledge-sharing space.* The objective of this article is to establish the dynamics of the process of knowledge construction and professional belonging in the Community of Practice of professional artisanal fisherwomen, in the region of Guaraqueçaba – PR – Brazil – in the light of the Actor-Network Theory, with an approximative approach to the SECI MODEL, a classic in the field of Knowledge Management. Applied, exploratory-descriptive and explanatory research was used as a methodology, with observant participation and mixed methods in the treatment of data, favoring the life stories, communal interactions and day-to-day activities of the involved fisherwomen. Findings: The network of human and non-human elements, the process of knowledge creation, was mapped establishing a comparison between the model proposed in this community and the SECI Model. It was confirmed that the SECI Model also applies outside formal organizations. In the analysis of communities of practice, the concept of communities of practice was expanded, in this context, to a community of women's craft. Research limitations: The shyness of the fisherwomen, the rainy weather not allowing for research or fieldwork, the slow pace of time on the way life passes in those communities; all these, require an adaptation from outsiders. From the scientific publications listed through a bibliometric survey, carried out in national and international databases, considering the constructs 'fisherwomen', 'knowledge construction' and 'Actor-Network Theory' did not return any substantial findings. Data like these reveals research gaps, and the originality of the topic.

Keywords: Actor-Network Theory; Female Empowerment; Fisherwomen; Professional Identity; Knowledge Construction.

RESUMO: Na dinâmica do conhecimento, as comunidades de ofícios de mulheres formam um grande *ba*: espaço de compartilhamento de conhecimento. O objetivo deste artigo é estabelecer a dinâmica do processo de construção do conhecimento e pertencimento profissional na Comunidade de Prática de mulheres pescadoras profissionais artesanais, na região de Guaraqueçaba – PR – Brasil – à luz da Teoria Ator-rede, com vistas à aproximação do MODELO SECI, clássico na área de Gestão do Conhecimento. Utilizou-se como metodologia a pesquisa aplicada, exploratório-descritiva e explicativa, com participação observante e métodos mistos no tratamento dos dados, privilegiando as histórias de vida das mulheres pescadoras. Achados: Mapeou-se a rede de elementos humanos e não humanos, o processo de criação do conhecimento, estabelecendo um comparativo, entre o modelo proposto nesta comunidade e, o Modelo SECI. Confirmou-se que o Modelo SECI também se aplica fora das organizações formais. Na análise das comunidades de prática, o conceito de comunidades de prática, ampliou-se, neste contexto, o conceito de comunidades de prática para uma comunidade de ofício de mulheres. Limitações: A timidez das pescadoras, o tempo chuvoso que não permitia a pesquisa o ritmo lento do tempo, da forma como a vida passa naquelas comunidades exige uma adaptação de quem vem de fora. A partir das publicações científicas elencadas por meio de um levantamento bibliométrico, realizado em base de dados nacionais e internacionais, considerando os constructos 'mulheres pescadoras', 'pescadoras, 'construção do conhecimento' e 'Teoria Ator-Rede' não retornou nenhum achado substancial. Dados como estes revelam lacunas de pesquisa, e a originalidade do tema.

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Palavras-chave: Teoria Ator-Rede: Empoderamento Feminino; Mulheres Pescadoras; Identidade Profissional; Construção do Conhecimento.

INTRODUCTION – THEORY

Knowledge is indispensable for the development of humanity, being a necessary element for solving problems, as Polanyi (1958) asserted, explaining that when faced with unresolved problems, individuals believe they are capable of finding a satisfactory solution to solve them, creating new forms of knowledge.

The literature presents, from the theoretical perspective of Michael Polanyi (1958, p. 87), two types of knowledge essentially: (i) tacit and (ii) explicit. Ikujiro Nonaka (1994) expanded the discussion on the construction of knowledge by Polanyi (1958), presenting a process of converting tacit into explicit knowledge, strengthened in later works, in the Spiral of Knowledge (Nonaka; Takeuchi, 1997) and in the SECI model, conceived after the phases of the converting process.

The Spiral of Knowledge is the figure used by Nonaka and Takeuchi (1997) to demonstrate how knowledge is propagated, always increasingly, within organizations, creating a network of actors who share and expand knowledge. This spiral materializes in the SECI Model, which includes the four modes of knowledge conversion: (i) **S**ocialization, (ii) **E**xternalization, (iii) **C**ombination and (iv) **I**nternalization, which motivate learning within the institutions, whose acronym names it.

All knowledge, in the view of Nonaka (1994), subsidized by Polanyi (1966), is anchored in the tacit dimension; composed by circumstances and personal experiences, conquered and conceived; it is complex to formulate and verbalize it. Explicit knowledge would be constituted from the tacit dimension, making it sharable (Polanyi, 1966).

Nonaka and Takeuchi (1997) show that knowledge is individual and, to the extent that it is made explicit, it can be shared, transforming it into the company's, the groups or even society's knowledge, expanding into an ontological dimension. This knowledge of a group, or society, can be created and (re)elaborated in environments such as the Communities of Practice (CoP), which, according to Lave and Wenger (1991), are systems in which people share what they do, what it has meaning for their lives and for the community, creating new meanings and activities.

For Wenger, McDermott and Snyder (2002), knowledge is shared in different types of CoP since they define it as a group of people who have a common goal and who intensify their knowledge, skills and practices through dialogues and relationships that are established at different and multiple times.

The relationships that exist within a CoP make knowledge happen naturally through social relationships, a "strong community fosters interactions and relationships based on mutual respect and trust. It also encourages a willingness to share ideas, expose

one's ignorance, raise difficult questions, and listen carefully" (Wenger; Mcdermott; Snyder, 2002, p. 27). Wenger (1998) states that some characteristics are necessary to configure a CoP, such as: commitment assumed between members, common objective, organization of routines, knowledge and tacit rules of conduct.

Therefore, the CoPs are also configured as a *ba*, which are characterized as physical, virtual and mental spaces in which individuals can interact and reflect collectively, explaining and conceiving new knowledge. Based on the statements of Lave and Wenger (1991) and Silva (2004), it is assumed that the group of fisherwomen, object of this study, is configured as a CoP, because in it there are interactions, experiences, negotiations and, therefore, exchange of information and knowledge, mainly, practical. They organized themselves to discuss and analyze their realities, exposing conflicts and how they perceive them, so that they can strengthen their way of life. In this context, the creation and construction of individual and collective knowledge takes place (Saavedra-Díaz; Rosenberg; Martín-López, 2015).

This group of professional artisanal fisherwomen practice an activity that is inherent to men who, in turn, are held responsible for the family's support. The woman is responsible for taking care of the home and children, but this situation has changed over time. The woman left in search of work, concentrating functions and originating the double shift (Ludermir, 2000). In this context in which roles are well defined, those women suffer the pressures of patriarchal power, which creates a system of oppression, control and exploitation (Choudhury; Haque; Habib, 2016; Wajcman, 2004).

Arns *et al.* (2016) state that inequality in this environment is clear, as fishing is conceived as a male job, therefore, women's work is often not recognized, even by the women themselves. This is because the work of women and children is seen as complementary and irrelevant, "in these cases, remuneration that only 'helps' with the composition of the family budget" (Paulilo, 1987, p. 7). It is noticed then, the devaluation of this work, seen as "light" (Paulilo, 1999, p. 244), since the remuneration is marked according to the family hierarchy.

Furthermore, and according to the Global Gender GAP Report (World Economic Forum, 2020, p. 17) Gender parity in pay is proving hard to achieve. Pay differentials between men and women are a persistent form of gender inequality in the workplace and the Global Gender Gap Index 2020 finds that the progress towards closing the gender gap on this aspect has stalled. No country (including the top-ranked ones) has yet achieved gender parity in wages.

Established such points, in general terms, this study intends to unveil the dynamics of the knowledge construction process in its two typologies (tacit and explicit), and how this construction and the SECI Model are configured, in which a CoP of fisherwomen is assumed craft professionals. In addition, it is intended to go deeper into how the appropriation of this knowledge can influence the construction of an identity, including a professional one. These purposes will come from the mapping of the existing connections between the different actants, human and non-human actors,

linked to the established social network, as specified by Latour (1992), in the Actor-Network Theory (ANT). These actors act mutually, interfere and influence each other's behavior with the difference that the human will be able to adjust the non-human element, according to his need.

This article is structured by presenting the methodology, the data collected, the research findings, it brings the analyzes and inferences and finally the conclusions arising from this process.

METHODOLOGY

This study used the observational participation in the field, favoring the daily record of a fisherwomen community, prioritizing their life stories, integrating and triangulating their experiences with social contexts, with an exploratory-descriptive character (Creswell, 2007; Jovchelovitch, Bauer; 2002; Maya-Jariego, 2017; Oliveira, 1999; Paulilo, 1999; Peruzzo, 2017; Thiollent, 1982).

All observations were aimed towards the work carried out by those fisherwomen, how knowledge was developed and shared in the community, whether this group was configured as a CoP, and also how the network was formed, and which were the actants that were part of it. The analysis and treatment of data was configured as mixed methods, prioritizing the final qualitative approach.

PRESENTATION OF COLLECTED DATA

In this item, aspects referring to the territory and profile of the fisherwomen, perceptions, gender and power and, finally, the network's actants are addressed.

Fisherwomen' territory and profile

Composed by several small communities, the Guaraqueçaba Environmental Protection Area is located on the northern coast of the state of Paraná. The protagonists of this work live there, and account for a target audience of 35 women form the locations of: Barbados, Canudal, Guaraqueçaba, Sibuí, Superagui, Tibicanga, Varadouro and Vila Fátima, as shown in figure 1.

Figure 1. Location map of Guaraqueçaba and study communities.

Source: Own authorship (2021).

These women are aged between 18 and 76 years old and the average age is 40.89 years old. It was found that 88% of these women are married; 8.6% are single and one of them is a 76-year-old widow.

Of these fisherwomen, 11.04% attended Magisterium – high school – and 5.70% attended higher education.

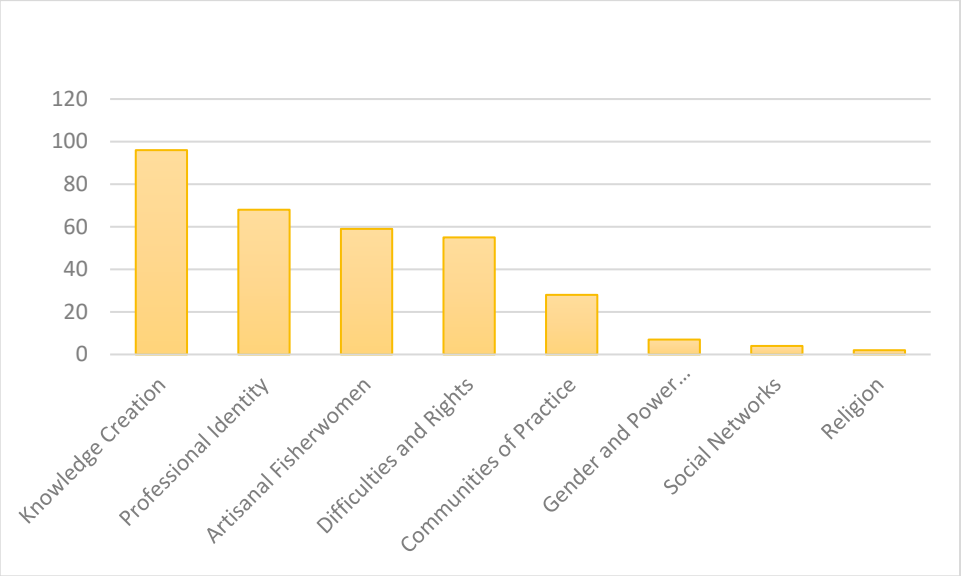
From the observational participation and the In-Depth Interviews, recorded in 340 hours of recording, with 259 pages of transcription, the surveys of the points of interest – nodes – for the research were determined, derived from the categories of context and analysis. Eight main nodes were identified: (i) knowledge creation, (ii) professional identity, (iii) artisanal fisherwomen, (iv) difficulty and rights, (v) communities of practice, (vi) gender - power relationship, (vii) social networks and (viii) religion. Three nodes, (i) Difficulty and Rights, (ii) Religion and (iii) Gender - power relationship, which were not declared as initial categories, emerged in the Content Analysis, which was supported by the NVivo 12 Software. The perceptions obtained from the analysis are as it follows.

Perceptions

The node with the highest incidence of registration units was Knowledge Creation, followed by the lasting nodes of Professional Identity, Artisanal Fishermen, Difficulties

and Rights, Communities of Practice, Gender and Power Relationship, Social Networks and Religion, as shown in Graph 1.

Graph 1. Nodes created after the in-depth **interviews**.



Source: Own authorship, from NVivo software (2020).

It should be noted that the Religion node stood out in the researched context, not because of its statistical incidence, but because of its tacit relevance, as religion is present in everything they do and speak.

In addition to religion, another aspect that mobilizes fisherwomen is their profession – Professional Identity node: in addition to homework, they hunt for crabs, collect oysters, deshell *bacucu* and *sururu*, kill and peel shrimp, fish for crabs and other fish, including puffer fish, which is fished in Cananéia (SP) – approximately 50 km away – because in Paraná it is prohibited to fish for this fish. They travel there by boat, take their fishing gear, set up their shack near the water and stay there for up to fifteen days, in unfavorable and precarious conditions.

It is possible to observe the vision they have regarding the profession and the work they perform: they are fishers, yes, and if they are not on board a boat, they are married to fishermen and carry out all the work related to fishing. They claim that this profession is good and that they are surviving and supporting their families. In this way, the members of the families work for their maintenance and subsistence. However, it should be noted that gender and power relations still generate (in)tolerance.

Gender and power

Twenty percent of those surveyed women said they suffer prejudice for saying they are fisherwomen, not people from the communities, as these are fishers too. However, when they leave their communities, they are not seen as fishing professionals.

Exchanging with the group, we sought to find out what feeling they had when appropriating knowledge and whether this could help them professionally. They found it very good to know and learn more about things and in a daily basis, a fact that is seen as important to their lives.

We sought to find out from the fishermen if fishing is a job or just a "tiny little thing"[1], to which they replied that fishing is a profession, despite not being valued, it is what they like to do. Mapping the actors in this professional network is a sequential focus of work and research.

Actants

Latour (2012) advocates that one must follow the marks left by the actors' practices in order to follow and establish a network, in this way it can be described together with its actors.

Fisherwomen suffer the agency of other actants, and these also suffer the agency of fisherwomen, who determine when, where and how they will be used. It can be seen that several actors permeate the daily activities. They relate to **people** from the family, the church, educational institutions, tourists and other communities. They use various **artifacts** to carry out their work and after each fishing trip they leave them washed, cleaned and stored on the ranch to be used in the next fishery.

The issue of **weather** directly influences the work of fishermen. If it's raining one can't fish, the same happens with certain types of **wind.** If the **tide** is high, it is possible to fish for certain types of fish, if it is dry, it is good for collecting oysters and anvil. The **sun** and especially the **moon** intervene in the various forms of fishing. Weather is what rules the lives of fishermen, it determines what can or cannot be done.

The word "sea" was not often mentioned by them, but the community maintains itself because the **sea** is there, available. This word "sea" is always between the lines, when they look out of their houses and soon see it, they already know how the tide is; if they can go fishing or gathering oysters; or if due to the wind it would be better to stay home, because on that day "the sea might be rough" and might be too much *vanzeiro*[2] and there won't be many fish, as they say.

The boat, this actant, which acts and suffers the agency, is essential for fishing and moving around, as it is the only means of transportation for the communities to reach Guaraqueçaba – an average distance of approximately 12 km from the communities.

In this sense, it is understood that the **group of women** is also characterized as an actor or an actant, as the agency that the group executes is contained in its relationships, in

[1] Expression widely used when the work is performed by women.
[2] Word used by the fisherwomen meaning that the waves are strong and rough, affecting the boat. You could say the sea is more turbulent.

the rules of coexistence, in the decisions taken together, in the guidelines and teachings. who share, this causes the behavior of other actants to be re-signified. We can cite as an example the *cuia*, used to remove water from the boat, made with light material, from the fruit of the *coité* tree. Currently, this material has been redefined and this object has been replaced by plastic packaging, from other products, which are cut and destined for this purpose. With the resignification of this actant (now a plastic package) the principle of symmetry stands out, in which an actant acts and transforms the other actors in a network, suffering and imposing the agency (Callon, 1986).

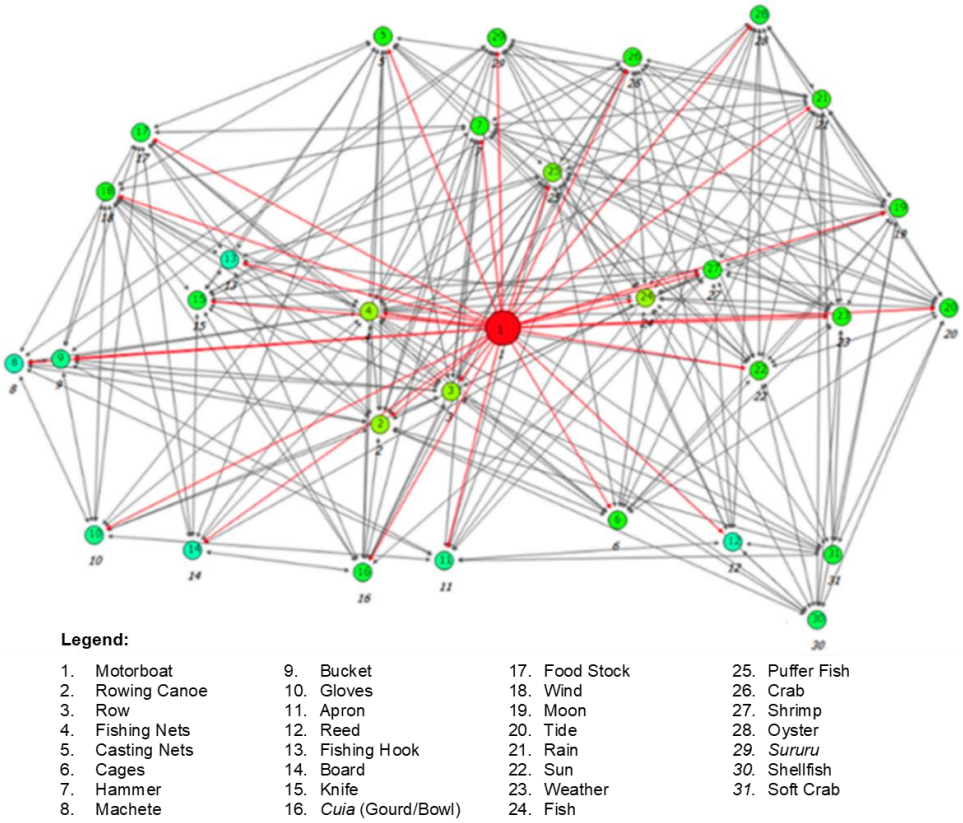
During the in-depth interviews, an attempt was made to investigate which people the fisherwomen relate to, the family comes readily, then the community, then some people appear in Guaraqueçaba and others in Paranaguá, the mainland.

It was verified which were the non-human actors and their usefulness in the daily lives of fisherwomen. These actors are part of a social network and are connected in this web of relationships, affecting and being affected by the context in which they are inserted (Callon, 1986). The development of social relationships in a network is carried out over time, creating bonds of trust, collaboration and exchange of practices, resulting in cooperation between its members (Granovetter, 1983, Lave; Wenger, 1991, Latour, 2012).

As a result, the intense centrality of the motorboat in relation to the other elements of the network[3] can be seen in Figure 2.

[3] The networks, in SocNetV (Social Network Visualizer software used for data collection), are ordered and colored according to the index of centrality degree of the nodes, which is calculated based on the most direct associations, the shortest paths in the network (Degree Centrality) and with a Kamada-Kawai type configuration, of positioning directed to the force, to stick to the same criteria and be possible for comparison. (Socnetv.Org, 2020).

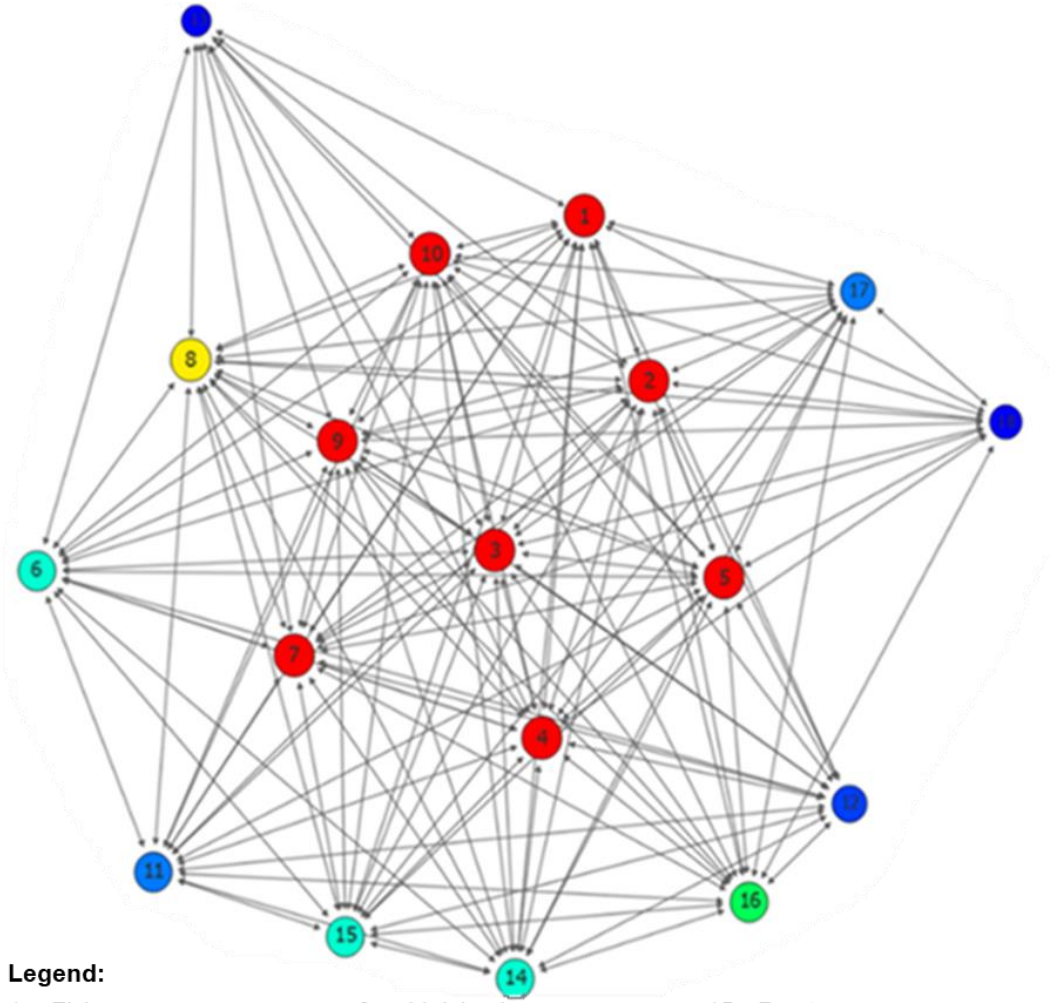
Figure 2. Network of non-human actors.



Source: Own authorship, from the SocNetV software (2020).

Nineteen different actants were surveyed in the human actors' network (according to the caption in Figure 2), with the largest number of interactions – greater strength – appearing in the network represented in Figure 3 (as can be seen in the image below). Human actor's network, through knots, in red (1. Fishermen, 2. Parents, 3. Husbands, 4. Family, 5. Relatives, 7. Communities where they live, 9. People from Guaraqueçaba, 10. People from Paranaguá). The yellow node follows, which corresponds to the other communities in the region (8).

Figure 3. Human Actors Network.



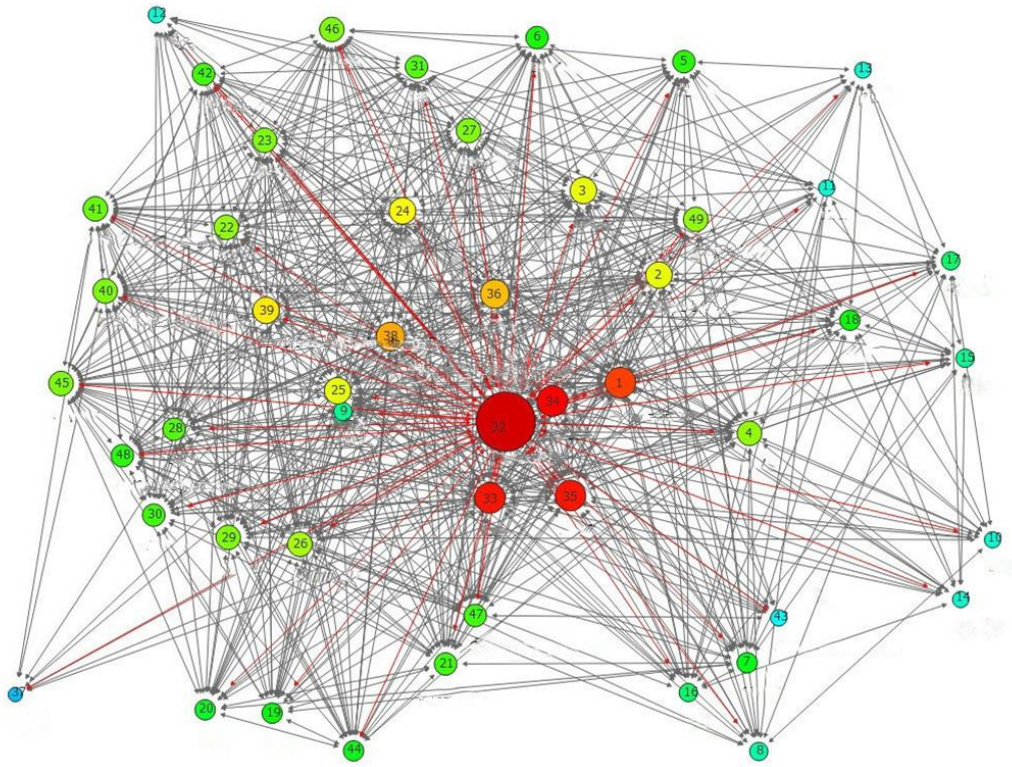
Legend:

1. Fisherwomen
2. Parents
3. Husbands
4. Family
5. Relatives
6. Church
7. Own Community
8. Local Communities
9. Mainland (Guaraqueçaba) People
10. Mainland (Paranaguá) People
11. Teachers
12. Schools
13. Tourists
14. Mopear
15. Peart
16. Government Agencies
17. Fishers Colony
18. Seafood (fish, oysters, soft crabs, crabs, shrimps, shellfish) Buyers

Source: Own authorship, from the SocNetV software (2020).

The network of human and non-human elements, represented in Figure 4, has 49 contact points, the nodes – with 1,362 connections or ties, which represent the interactions between human and non-human elements, with relative density. Node 32 (Fisherwomen) is the one with the greatest intensity of existing relationships with the other specified nodes. The greatest concentration of strength is in the nodes of human actors, 33 (parents), 34 (husbands) and 35 (family) and the non-human element that is linked to the fisherwomen is node 1 (motor boat), an essential element in their lives.

Figure 4. Network of human and non-human actors.



Source: Own authorship, from the SocNetV software (2020).

Based on figure 4, it is observed that the relationships are made and the process of knowledge conversion with evidences of the SECI Model is verified in its four typologies is inside them. Also, the concerned individuals have skills that they learn through the observation of actions and rules, which are often not explained verbally to those who interpret and follow them. This tacit knowledge, in Polanyi's (1958) typology, can be shared, however, certain types of knowledge have limited explicitness capacity, because "An art which cannot be specified in detail cannot be transmitted by prescription, since no prescription for it exists. It can be passed on only by example from master to apprentice" (Polanyi, 1958, p. 55).

On the other hand, in Polanyi's (1958, p. 55) statement, "We know more than we can say" in words, it is necessary to hear, feel, see with different eyes; this statement refers to the story of Fisherwoman P20 who told about an episode of fishing for mullet, that her husband told her to be quiet so he could hear the fish, then she also heard the noise the fish makes when swimming, the noise when he jumps, the way the water presents itself in a certain place.

This is a typical example of Nonaka's (1994) socialization: the husband tacitly knows the phenomenon and tries to demonstrate practically how the fact occurs. It is the sharing of tacit knowledge, using practice to create new knowledge for this fisherwoman, if she internalizes it. An effective master-apprentice relationship (Nonaka, 1994; Polanyi, 1958).

Polanyi (1958) highlighted the role of language in the communication of the knowledge process, this is essential for its sharing and, many times, it is known how to do things, however, we do not know how to explain how this process could be carried out.

The language used by the group of fishermen is an actant, as it has specific terms such as *dalheante*[4] , *sacrificioso*[5] and also each community has a different accent. It, the language, is inserted in the human being and according to Ingold (2004, p. 218) "The forms of language, for example, emerges through people's activities of talking to one another; thus, language evolves even as we speak".

In Nonaka and Takeuchi (1997) the link between knowledge and belief appears, and Polanyi (1958) also raises this issue when he states that the beliefs that people have are anchored in themselves, because they have a set of assumptions and do not, in general, the exact understanding of what these are and, for this reason, find it difficult to express them.

Nonaka (1994) used Polanyi's theory of knowledge (1958) and demonstrates how tacit knowledge becomes explicit, which becomes tacit, creating a spiral as demonstrated with the SECI Model.

(i) Socialization, for Nonaka and Takeuchi (1997), is characterized by the sharing of tacit knowledge between people and when this occurs in a practical activity, one learns from the other. Socialization is observed when one of the fishermen explained about the winds, showing through gestures which way they came and where they were going, during Socialization, more than words, the body speaks. Dialogue, pure and simple, does not allow for complete understanding, it is necessary to see the practice, through everyday experiences is that women fishers can measure how much wind it takes to turn the boat or not, a knowledge process that involves, however, all phases of the SECI Model. If there is socialization of the knowledge of parents who share it with their daughters, there are times when the externalization of how it is done, becomes viable in each of the fishing practices.

(ii) Internalization is the moment when they incorporate what was taught and carry out the activity, externalizing it, demonstrating that they have internalized knowledge and are able to do what was understood and learned during the execution of fisheries and in the handling of the boat. In this situation, it can be seen that the way to create and share knowledge is through language and action, through how to do it.

[4] Something that's further on.

[5] Mention of something or some situation that is difficult.

(iii) Externalization can be verified in the researched group when a fisherwoman receives certain information and passes it to another one verbally. Soon after, conjectures are made about that information and the conversation that follows is carried out through externalization and combination, seeking tacit and explicit knowledge to reach a conclusion.

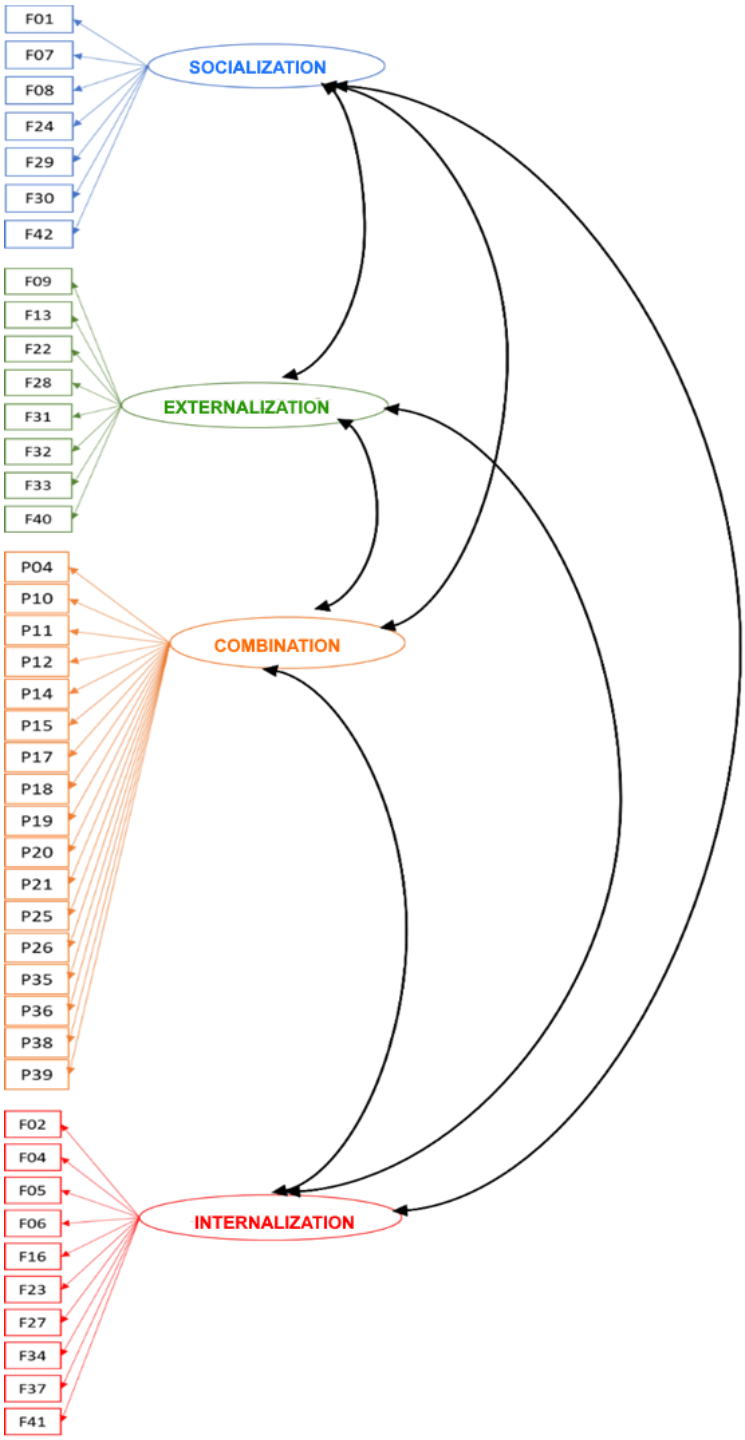
(iv) Combination can also be demonstrated when asked what happens if a fisherwoman suggests a practice, or gives a suggestion, how this is seen by the group. In this process, socialization, externalization and combination are clearly presented. The suggestion can be accepted, however, when there is disagreement in the group, the situation is discussed and each one of the women decides for what is best for them, always striving for respect. When this situation happens in a group, this process is enriched and the connections between socialization, externalization and the combination of different knowledges take place with greater profusion.

In these relationships are found the four modes of conversion that appear in the spiral of knowledge, proposed by Nonaka and Takeuchi (1997). The studies by Von Krogh *et al.* (2000) emphasize and corroborate the relevance of interaction and the quality of relationships, for the creation of new knowledge and the relational importance verified in the various statements of the fishermen and according to Nonaka and Takeuchi (1997) this process happens spontaneously.

In order to format the spiral, life stories and the logbook were sought for situations that could be classified within the SECI Model. 41 items were listed and from this, it was defined by the elaboration of a figure similar to the Path Diagram (Figure 5), which according to Hair Jr. *et al.* (2009) is a representation, which aims to demonstrate the relationships between the constructs of a given model.

It is verified in this Diagram that the Spiral of Knowledge created by Nonaka and Takeuchi (1997) is carried out with tacit knowledge being explained in the Socialization conversion mode, transforming itself into Externalization, modifying itself in Combination and converting into Internalization.

Figure 5. Path diagram.



Source: Own authorship (2020)[6].

[6] To elaborate this figure, the facts (represented by F01, F02, ...) described in Table 17 were related, bringing them closer to the SECI Model conversion modes. Each of the 42 items is represented in the Paths Diagram – item 1 corresponds to F01, item 02 to F02 and so on; each fact is related to the mode of conversion and these are related to the modes, according Arns (2020).

In conversations with the fisherwomen, it is possible to observe the characteristic evidences of Nonaka's SECI Model (1994) and the treated spiral, in their speeches about eating or not eating stingray meat. Not all the residents of these communities eat because they say that the stingray is strong meat and is abortive. It is observed that these are beliefs of the older ones, that the younger ones have dared to experiment and found that it doesn't hurt.

It appears, therefore, that the Spiral of Knowledge is materialized through relationships, interactions between people, against the backdrop of training contexts, also called knowledge creation environments or *ba,* presented in the context of women fishers.

FINDINGS

In the sequence, the data found from this research is explained, initially dealing with the Communities of Practice, passing through the learning of the specific craft of this community, the relationships and ending with the levels of participation of the actors.

Lave and Wenger (1991) work with situated learning and claim that learning is part of social practice, being a social phenomenon that involves observation and action arising from lived experiences, reflections, and judgments in everyday situations.

Four essential points are taken up, according to Wenger (1998), for learning and the social nature of knowledge to materialize: (i) the human being is social; (ii) it is necessary to know the practice of a certain activity; (iii) one must be engaged, that is, pursue such endeavors, and finally (iv) experience the world producing meaning. This is because knowledge walks alongside power and meaning is constructed in the present moment, according to Lave and Wenger (1991).

To make learning effective, it is necessary to observe some points, such as: meaning, practice, community and identity. Social learning was one of the points observed and proven as described by Lave and Wenger (1991) in the community of fisherwomen. In this environment – enabling context or *ba*, knowledge is shared, and social learning takes place through the exchange of different information and knowledge of the fishermen's daily lives.

These individuals learn a skill and in communal moments they engage in the dynamics of practical learning to become competent. In CoPs, the skills of each member are involved in mutual engagement, what they know, do, how they can connect and help with issues they don't know or don't perform, that is, how they can use and share knowledge, making the issue diversity a possible engagement. Each participant in a CoP finds a unique space within it and has a unique identity, which becomes more integrated, more defined and increasingly articulated, although they do not incorporate one another. Mutual engagement relationships constitute, synchronically, differentiation and homogenization (Wenger, 1998).

It is exemplified by what was exposed by Fisherwoman P32 (2020) who knows how to cook and knows the quantities of food that must be prepared for a given group. She shares this knowledge with other women, demonstrating and teaching how to prepare it. In this example, one can see the space it occupies in the community and its specific identity, which is also recognized by the other participants.

The types of relationships within a CoP can be complex, since through mutual engagement, people develop bonds that can go beyond the CoP's objectives, motivated by personal or social issues, further strengthening the bonds between them.

Based on these statements, it is clear that the ties between the members of the group of female fishermen are strong, they are committed, engaged in improving their lives, have specific identities, but they also develop the identity of the group and the feeling of belonging when they look for their rights.

It is believed that the group of fisherwomen is directly affected by the action of other elements or artifacts that surround them, intervening in their activities. It is the fisherwomen who translate, interpret and understand the other actors, when they show them the shoal, the sand banks that even covered by water, they know where they are and that in that place the boat can run aground.

Being part of a social group, of cultural practices, developing relationships and establishing ties with the group, demonstrates the individual's identity, the capacity or inability to emphasize the meaning established in communities and forms of belonging. Therefore, participating in those communities highlights what you do, who you are, how the actions developed by the group are interpreted and encourages the sharing of knowledge, ideas, suggestions that will generate new knowledge or re-elaborate the previous one (Wenger, 1998; Wenger; Mcdermott; Snyder, 2002).

In the analysis based on Wenger, McDermott and Snyder (2002), it appears that the group of female fishers is characterized by a CoP, as they have a purpose - belonging to community members and they choose new members, are committed to the *expertise* of the community. group that will exist as long as there are fishermen members.

The domain elements - sense of identity, community - social configuration and trust relationship between leaders and community members, and practice - how to carry out socially defined activities, are elements that allow analyzing and classifying a CoP and are found in the group of fisherwomen.

Regarding the levels of participation and the actors of a CoP, after observing the day-to-day life of the group of fisherwomen, it was found that they are at all levels of participation and are classified as active participants, they interact with all levels and are leaders within their communities.

DISCUSSION – IMPLICATIONS

Sea and land, this is a necessary intersection for the lives of fisherwomen. Actors in a tangled web of connections, and ties like the fishing net itself, which, when removed from the water, brings the fish, but also brings algae, branches and always the hope and expectations of a good fishing. This scenario can be inferred from Figure 4 - Network of human and non-human actors - which presents the connections with different human actors, the ties with family members and other bodies, the relationship with the artifacts that permeate the activities of the fisherwomen, represented in Figure 2 – Network of non-human actors. Adding to all this there is the objective they have, not represented in the Figures, but perceptible in their testimonies and life stories, the incessant search for the subsistence of their families and the hope for a better future.

The group of women in the community under study - as well as others, suffers and experiences the action of other elements or artifacts that make up the larger network, interfering in activities, however they also interfere, they are, in the same way, actants, following the vision by Callon (1986) and Latour (2012). As are the fish, the boat, the nets, the traps used for fishing, the sea, the weather: the sun, rain, wind, moon and tide, whose agency directly impacts the achievement of a good or bad fishing. It is the human elements that translate, and in this context, it is the fisherwomen, who interpret and understand these specific actors that surround them when they explain what it is or demonstrate the shallows, the drying tide, the rising tide, and where it goes. tide, the rising sea or the fattening moon, as glimpsed in Gerber (2015). This is the language of human actors, with a specific lexicon in which to mitigate and avoid the threat of silencing them because their voice is important, as advocated by Latour (2012).

The artisanal fisherwomen, despite the praxis of their daily work, commented in in-depth interviews that they are victims of prejudice, when they claim to be fishers, these are the different interests that Wajcman (2004) points out.

Attention is drawn to another positive scenario, however, with regard to the ecological knowledge of fisherwomen, since the practices do not reproduce outside that community and this implies in adapting these practices according to social and environmental changes. Professional artisanal fisherwomen have different ways of dealing with natural resources and knowledge related to the environment and its sustainability, this knowledge is considered when trying to reconcile the economy and the environment.

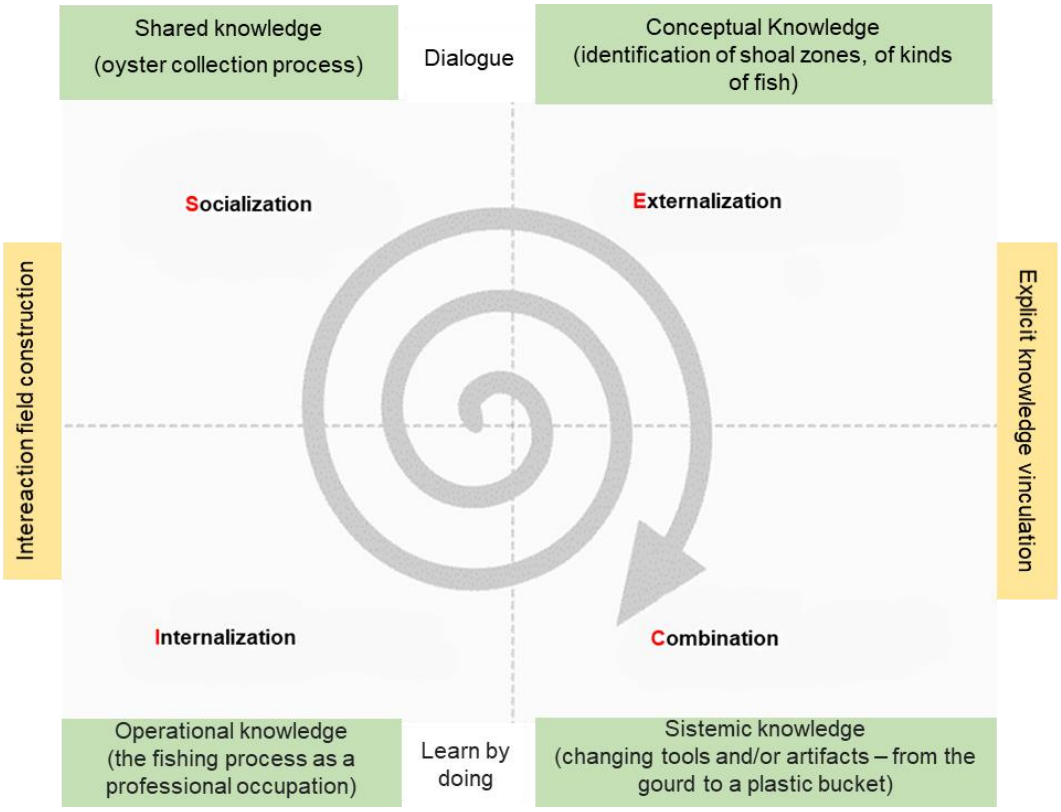
It is then possible to relate this knowledge and the actions of these women with the ecofeminist theory, which focuses on a collaborative, interdependent and egalitarian society, according Merchant (2012).

The fishermen mentioned the importance of living together in the community, because this way they can help each other in any situation. It is then proven that socialization takes place in this group of fisherwomen and that it actually takes place. As well as the

Combination, when the knowledge of one is added to the knowledge of the other. It is knowledge about fishing that is shared orally, as well as the history of their families, their practices and they share what they know with other members of the community.

In these relationships and examples are found the four modes of conversion that appear in the spiral of knowledge, proposed by Nonaka and Takeuchi (1997), added to the studies by Von Krogh et al. (2000), when they emphasize the relevance of interaction and the quality of relationships, to facilitate the development of new knowledge, as this is a social construction.

Figure 6. Spiral of knowledge with examples.



Source: Adapted from Nonaka and Takeuchi (2008, p. 69) and Strauhs et al. (2012).

The acquisition of knowledge takes place through observation and daily practice, the exchange that takes place through word of mouth, "in conversations, it is a therapy because in the shack women exchange experiences with their colleagues, speak, explain and when one knows something one thing, passes to the other. (Fisherwoman P17)". This is a beautiful example of a combination that emerged in a non-formal setting.

In ANT, this acquisition of knowledge is underlying and permeates the entire network (Callon, 1986), which only exists because of the traces – they are the interactions, they

are the ties – and the ties are the unequivocal representations of knowledge, this intangible element.

Tacit knowledge is present in all the actions of this community of fishermen, when they teach their children, when they transmit information to another colleague, when they suggest a different way of doing something because they experimented and discovered, by trial and error or intuitively, that if they do it in another way, it will be better. As an example, the speech about eating or not eating stingray meat is transcribed. Not all the residents of these communities eat because they say that the stingray is strong meat and is abortive. It is observed that these are beliefs of the older ones, that the younger ones have dared to experiment and found that it doesn't hurt.

It was observed that the community of professional artisanal fishers studied is characterized as a *craft-based* one, as tacit knowledge is encompassed in their practices, in the artifacts they use, in the culture and language they share through social interactions. located (Amin; Roberts; 2008). In this process, learning takes place through legitimate peripheral participation between the one who learns and the one who teaches.

It can be said that this group has several characteristics of a CoP, because it can be seen that this group builds and shares knowledge collectively, mainly through their practices, which are so significant to their lives. So, this is an aspect that can be linked with the early CoP concepts of Lave and Wenger (1991) and the practice of this group of women.

It is asserted that society is also heteronormative, so the issue of invisibility, the patriarchal system, the identity of these fisherwomen, shifts between being a leader in their community of women and being a spectator in the general community in which men are inserted. This is the reality that can be found in many women's communities and, if these communities are identified, they will go through these situations.

CONCLUSION

The perception that one has with this research process is that there was little time to be able to observe all the richness that the context of fisherwomen presents.

A lot was learned about networks and their connections, about the construction of knowledge that can be materialized in the exchange of a simple recipe during the shelling of shrimp. From the practical coexistence of the community that actually exercises communion and identity.

With this work, it was noticed that there were changes in the researcher. The way of seeing things, people, jobs, the different realities that exist and that cannot always be perceived and known has changed. It's another world, different from the one in which the involvement is in doing everyday things, with the rush of cities, with the comfort of modernity and available technologies. We learned to look different, to see things in

the reticence of each speech of those women, in the information contained in a practically silent speech, but with their actions and postures said a lot about them and their lives. The relationship between the researcher and the fisherwomen was modified, she is currently not just the "teacher", she is a person who is part of those families and who has a different view of that context. The researcher literally lived in another place and was affected by the specific intensities of that region, the people and the subtle and delicate relationships created by and in coexistence. The network grew and bonds became stronger, new things were seized and others were re-signified.

An emerging and conflicting aspect of this research is the issue of invisibility: despite being the identity of a community, it is not possible to name the fishermen in this work, because the guidelines of the Ethics Committee and the national rules of search.

A scientific finding is registered here: after knowing and experiencing the day-to-day life of this group of women fishers, based on all the above elements, it is inferred that a new formulation of CoP is being made: a community of women's practice, a community of female practice and why not, for a community of female professional practice, since concrete evidence was observed regarding the characteristics listed by the basic authors used, such as the analysis of attitudes, context and coexistence with the group. Based on the evidence, the concept of communities of practice was expanded to a community of female professional craft, using the data presented as a basis.

It can also be seen in practice, finally, that Nonaka and Takeuchi (1997) with their knowledge creation Model, applied within formal organizations, transcended the four walls of factories and the SECI Model also occurs in other less formal and lacking structures of complex technologies, whether of artifacts, policies, or management, as the essence of knowledge creation actually resides in human actants.

DISPONIBILIDADE DE DADOS

The entire data set supporting the results and the analyses of this study was made available in Repositório Institucional da Universidade Tecnológica Federal do Paraná (RIUT) and can be accessed at http://repositorio.utfpr.edu.br/jspui/handle/1/23654.

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