

THE ROLE OF COMMUNITIES OF PRACTICE IN HIGHER TECHNICAL EDUCATION

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ABSTRACT *A communities of practice is a group of people who share a concern, a set of problems or a passion about a common topic, a passion for a professional or personal activity. Universities may be regarded as professional communities in which joint activities are carried out, with well-defined structures. Using networks at university level increases joint assembly of ideas held by each individual, while the exchange of ideas and practices inevitably may lead to the system enrichment, producing effectively loops of innovation and development.*

Keywords: university, communities of practice, virtual communities, learning

1. INTRODUCTION

Communities of practice are originated in antiquity, mostly being orientated around family. Living together and having meals together, family ensures the transfer of experience and professional tricks from father to son in the process of taking over responsibilities and of perpetuating the job on which the family was specialized. Everyone was helping each other for the good of the whole family and community to which they belonged.

In a modern context, implementation of communities of practice was applied in Chrysler Company. Thus, until 1988, Chrysler Corporation was traditionally organized with directives from the top of the management structure. Being threatened by the Japanese companies' competition and being on the verge of bankruptcy, the company had to develop something innovative to stay on the market. The solution was a formal communities of practice composed of engineers from all divisions of the company in order to speed up the process of developing a new car model. The result was spectacular: from 5 years as the process of creating a new model last, they managed to release to the market a new model in just 2½ years.

Communities of practice formed by Chrysler benefited from the already established relations between the same field engineers who met informally and discussed on what the other such teams were doing, what were the difficulties they were facing and how they overcame them. To avoid common experiences and similar ideas, the communities decided to create Engineering Book of Knowledge or EBoK: a database that would contain all relevant data, best practices, learned lessons and information about suppliers. This was the solution found by the company in order to withstand the automotive market.

IBM, Xerox, British Telecom and The World Bank are just a few of the organizations who understood the role that communities may have and they acted for their development.

Etienne Wenger, Richard McDermott and William M. Snyder (2002)[12] in "Cultivating Communities of Practice" present communities of practice as "groups of people with common interests who meet regularly or not, in formal or informal manner, and discuss on the field which unites them, share experiences, tips and information and, in some cases, study in detail and thoroughly this information for future reference". The community of practice purpose is, therefore, to make explicit the informal transfer of knowledge by

providing a formal structure to enable the acquisition of new knowledge through shared experiences within the group (Bozu & Imbernon, 2009)[2]. In this way, the group itself and the individual professional identity can be improved effectively.

2. PRINCIPLES FOR COMMUNITIES OF PRACTICE DEVELOPMENT

Developing knowledge through communities of practice can be carried out, in the opinion of E. Wenger)[12], in seven steps:

1. Understanding the strategic needs of knowledge: what knowledge is essential for success?

2. Identifying practical fields (finding communities): where will people form communities around the practices in which they can engage and with which they can identify?

3. Developing communities: how to help key communities to reach their full potential?

4. Expanding borders: how to engage and transform communities into broader learning systems?

5. Running business: how to integrate communities of practice in organization business management?

To support knowledge, we must focus on the community that owns it and the people who use it, not on knowledge itself (McDermott). In building a community, we can speak about four challenges:

- technical challenge (human and informational systems design that not only make information available, but also helps community members to think together);
- social challenge (developing communities that share knowledge and yet retain enough diversity to encourage thinking rather than copying);
- managerial challenge (create an environment that really appreciates the sharing of knowledge);
- personal challenge (to be open to the ideas of others, willing to share ideas and maintain our thirst for new knowledge).

Wenger, E. shows the seven basic principles for communities of practice nurturing, principles that can help us to be more flexible and to understand their needs.

- Openness to dialogue between interior and exterior
- Invitation to the different levels of participation
- Development of both inside and outside space of the community
- Focus on value
- Combining the familiarity with interest
- Create a community rhythm

3. THE ON-LINE COMMUNITIES OF PRACTICE

In the Information Age we can not ignore the potential this has in the construction Communities of practice in virtual spaces (Allan & Lewis, 2006[1]; Graham, 2007[6]; Jameson et al, 2006[9]).

"Network-based-organizing", "virtual working", "Dispersed working" or "collaborative work", are just some of the concepts that are used in the literature to refer to communities of practice in virtual or organization with intensive use of new technologies.

Within communities of practice, communication between participants is one of the main conditions and E-collaboration technologies have improved to the extent that

communication increased.

Most popular and successful projects in knowledge management, involved the use of Internet and tools like "datawarehouses", "Decision Support tools" or "groupware".

For example there are the Knowledge and innovation communities such as the one proposed by the European Institute of Innovation and Technology (http://ec.europa.eu/eit/index_en.htm).

According to them, its functions are to promote the production, dissemination and exploitation of new knowledge products, transforming the results of research carried out in universities, in industrial products or the social economy.

However we can not ignore the fact that communities of practice often involve face to face interaction that facilitates collaboration as a necessary process for grounding and knowledge sharing. This limitation of online communities of practice can be improved only when participants have a high level of communication through new technologies. In the list below we present some differences and similarities between the offline and online communities of practice.

Some of the features of virtual communities are:

- They are easily organized, to the extent that members communicate with each other in a space created with the electronic resources.
- The organizational model is horizontal, without vertical structure, given that information and knowledge are built based on mutual reflection.
- Împărtășesc un spațiu comun în proces de construcție, fiecare contribuind cu propriile valori, obiective și sarcini, care dau sens comunității.
- Its members have shared resources and policies that govern access to these resources.
- There is reciprocity concerning information, support and services among members.

Virtual communities have the following advantages over traditional communities:

- (a) facilitate collaborative activities producing knowledge acquisition in a constructive manner and involving a strong social interaction;
- (b) facilitates the collaborative process;
- (c) gives more time to discuss complex and reflexive ideas;
- (d) knowledge can be enhanced by the diversity of participants;

Practice communities: virtual or face-to-face, are best contexts for knowledge management and are increasingly used in the university context because it facilitates communication and interaction processes.

The utility of Communities of Practice in knowledge management processes depends not only on the knowledge that is to be shared but also on two basic elements such as: professional identity and common values (Hislop, 2005).

4. COMMUNITIES OF PRACTICE IN THE UNIVERSITY EDUCATION TECHNICAL SYSTEM

Improving educational systems can be achieved through networks consisting of universities and professionals from education field. These networks can be formed by professionals from the same university, from different universities, from educational and social services in the same locality or different localities, in collaboration with educational, professional administrations and different communities.

In Age of knowledge, the ability to recognize patterns, to share ideas with communities of interest and the opportunity to grow personally through a set of relationships is how an individual integrates and develops (Poley, 2002)[11]. Continuous changes at organizational and didactic level, produced within educational system reveals the need to promote the exchange of knowledge between professionals, the ultimate goal being the one of improving the efficiency of the educational process of students.

Internal collaboration at the university level carried out regularly in departments, research centers or faculties is already a routine activity. However, these types of collaboration and networking are limited processes and circumscribed at teachers individual level, with poor participation of other agents, such as students or other external institutions.[4]

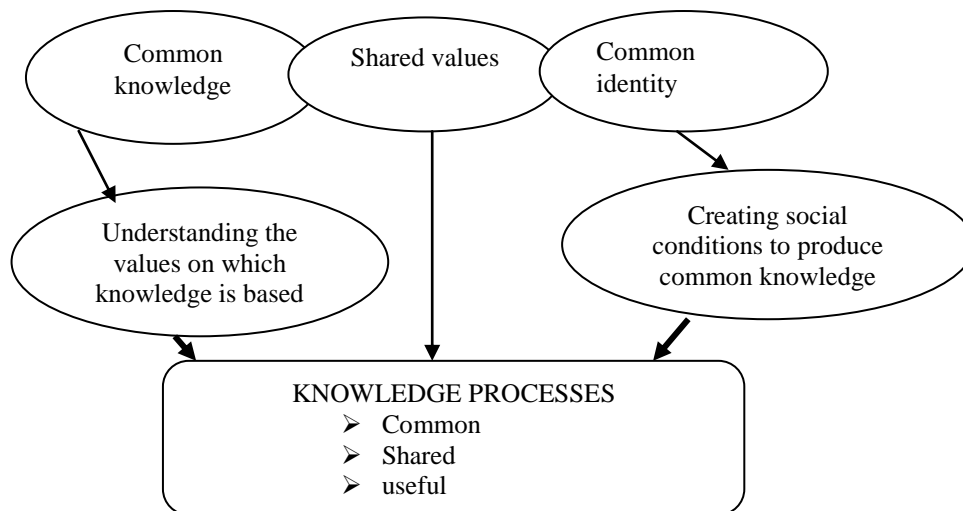


Fig. 1: Transforming knowledge into the community of practice (Hislop, 2005, p. 65) [7].

We can consider universities as professional communities in which joint activities are developed, with well-defined structures. Universities isolation can be overcome by strengthening collaboration processes that not only provides a powerful framework for professional exchanges, but also mutual support to overcome the problems that arise in teaching and learning processes. Using networks at universities level increases joint assembly of ideas held by each individual, and the exchange of ideas or practices may inevitably lead to system enrichment, producing effectively loops of innovation and development.

As shown, communities of practice are made up of people who are part of a collective learning process, in a shared field of human activity. A community is a group of people, at work or leisure, whose identity is defined in large part by developing roles and relationships and who share group work. An important role in organizing communities of practice has the legitimate peripheral participation (Wenger, 1991) and this requires transferring knowledge and skills across groups using various forms of guidance, implicit learning and active participation in the community. Legitimate peripheral participation is the way to achieve the relations between new and old members and also the relationships between activities, identities and communities of knowledge and practice. As the development continues, community members are moving from peripheral participation to full participation.

The functioning of any community of practice depends on the following facilitators (Cummings and van Zee, 2005; [3] Gannon-Leary and Fontainha, 2007; Kimble and Hildreth, 2005; [8] Milton, 2005 [10]):

- Institutional changes that facilitate the development;
- Promoting necessary technical innovations and tools facilitating to foster modern and flexible contexts;
- Open participation and horizontal structures of functioning;
- Teamwork;
- A properly coordinator;
- Participation of experts of recognized prestige;
- An initial meeting to establish common goals and directions for action;
- Specialized structures of communication, interaction and storing common knowledge;
- Regular and frequent interaction;
- Task orientation and clear deadlines;
- Good use of technology;

The community of practice is not a scientific community, it does not deal with science but with the practice derived from knowledge and with the management of this knowledge creation process. This process is achieved in a collaborative form and through a continuous process of establishing strategies of participation, leadership, identity and use or mobilization of knowledge.

A relational structure of a community of practice is shown in Figure 2

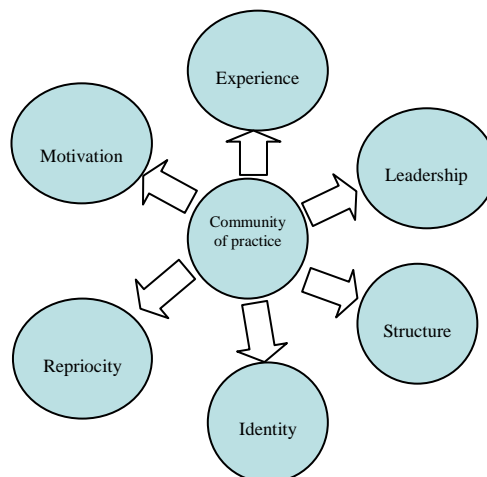


Fig. 2: The Structure relationship of the community of practice.[5]

5. DEVELOPMENT OF PRACTICE COMMUNITIES

In development of Practice Communities, we must take into account the following elements:

- Creating professional development opportunities. The practice community must be based on the promotion of authentic knowledge, and it must be based on a strong institutional policy;
- Creating learning-based learning opportunities. Learning is effective if it is based on experimental learning, practice, and solving concrete problems;

- Using self-evaluation as a learning resource. Forming self-assessment skills is essential in the development of practice communities;
- Transfer of learning and knowledge building. Learning in a community of practice involves analytical and reflexive processes as well as knowledge creation through knowledge among peers.

The management of practice communities must take into account: An efficient leadership; Creating a culture of learning; Providing learning at all levels; Use of distributed leadership; Coordination of professional development

The establishment of a strong communities of practice in a university must also take into account the external factors of the university. Therefore, collaboration mechanisms between the university and external agencies should be promoted and developed: transfer, assessment and construction of knowledge.[13]

In order to substantiate a community of solid practice, it is necessary to create sustainable relationships with various partners, including through the involvement of students, student associations, Alumni associations, community members, research centers, social services, industry or the business community.

The university's external context can influence the ability to create and support the Practice Community in an effective way. Such external influences can be considered: educational policies and their stability, institutional policy oriented towards the effective involvement of members of the academic community and transparency in decision-making to anticipate the activities of teachers.

But personal involvement is fundamental in creating and developing communities of practice. Professional communities operate as small groups, and universities have well-defined structural units that work in the form of departments or research centers and which must be involved in promoting the Communities of Practice. [14]

Universities' leadership must provide mechanisms to ensure the Community's sustainability of practice by stimulating the interest of the participants, maintaining the incentives for change and motivating community members to practice.

The first Practice Communities at Constantin Brancusi University in Târgu Jiu have been established since 2015. Three communities of practice, a Community for Legal Sciences, a Community for Accountancy and a Community for Business Administration have been set up. The establishment of the three communities of practice was possible with the help of POSDRU ID 140930 "Improvement of university study programs in the fields of Business Administration, Accounting and Legal Sciences by consulting Alumni".

Each community was made up of 15 members and enrolled students from each year of study both from undergraduate and master students. Planned meetings were held, attended by members of the communities of practice and invitations: community practitioners.

Among the results of the activity in the practice community were:

- improvement of university study programs and adaptation of the university curriculum by consulting the graduates, with long-term positive effects on the correlation of the university curriculum with the needs of the labor market;
- strengthening cooperation between the university and the business environment through alumni for better correlation of higher education with the labor market;

- increase the involvement of the business community in the activities and processes of defining the competences and the programs of university studies;
- improving students' practice - a more focused and multidisciplinary strategic plan;
- developing and implementing more efficient, coordinated communication with alumni;
- developing and implementing a marketing plan that focuses on mutual expectations and benefits - university-alumni.

Starting with 2017, the Industrial Engineering Practice Community was established on the previous model, comprising students from the Machine Building Technology and Masters degree from the Manufacturing Quality Management Program. There have been meetings with specialists from the field, working in the Oltenia Region companies, and among the obtained results: improvement of the study program, improvement of the students 'practice, increasing the employers' interest in the competences obtained by the graduates of the University. [15], [16]

Communities of practice have been established at Constantin Brâncuși University of Targu Jiu as a strategy for promoting best practice in learning and teaching in the area of engaging disciplines by fostering interdisciplinary approaches to curriculum design and development. In cultivating interdisciplinary at Constantin Brancusi University of Targu Jiu, communities of practice may focus on one or more of the following priorities:

- **Problem solving** Most communities of practice have an element of problem solving within their sphere of practice. A communities brings together expertise from a variety of sources to focus on solving a common problem, thus providing benefits to members and their elements.
- **Knowledge creation and sharing.** One of the main tasks of communities of practice is to develop new knowledge that will improve the quality of learning and teaching at University. A knowledge development community may decide to focus on finding, collating, organising and distributing the knowledge that their members use every day. This involves the community in organising shared information processes and focusing on filling knowledge gaps.
- **Best Practice.** A communities of practice focuses on developing, validating and disseminating best practice and may have as one of its projects the documentation and dissemination of such practice. [17]
- **Innovation.** Communities of practice may be based around issues of common interest to professional peer groups, with a focus on new and emerging areas of knowledge where there may be the opportunity to innovate. These groups can provide the basis for rapid dissemination of new ideas and resources.

6. CONCLUSIONS

Communities of practice are formed by people who are part of a collective learning process in a common field of activity. Promoting activities and community projects, promoting courses conducted by involving various agents may lead to increasing knowledge and sharing responsibility and participation of multidisciplinary teams of teachers, students, representatives of other institutions or community, and also of schools in the case of education sciences.

We can consider networks as types of organizational structure based on interaction without having a central point or predetermined sequences, but allowing non-sequential development of functions in an organization.

The communities of practice is not a scientific community, it does not deal with science but with practice derived from knowledge.

The communities of practice helps interaction and knowledge sharing, but an incorrect implementation can lead to failure.

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