Complex thought incidence on the transversality of knowledge management on economic and business sciences

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Abstract. The main purpose of this paper is to unveil the context and conceptions linked to knowledge management, to be internalized by the pedagogical procedures from the Economic and Business sciences programs process at "Universidad Francisco de Paula Santander". This research was conducted under the qualitative method, supported by the phenomenological – hermeneutic paradigm together with the complementary method ethnography. As results from the analysis units, it was observed that knowledge management intention recalls in creating organized knowledge networks between plans and programs reflected in the curriculums, so in that way, “open a new path” in new knowledges and theoretical postulates, which after been applied could generate new spaces in function to the actual society requirements, and the daily changes which impact people and social groups in a directly way. As conclusion, in the management of knowledge, institutional and classroom management are combined, which are then supported by the complementarity, without leaving apart the complex though, and this, when articulate with pedagogy makes the didactic more dynamic and proactive.

1. Introduction
Nowadays universities are conceived under an environment which tends to be very competitive [1] globalized, and of high quality; this environment also tends to present pedagogical transformations in teaching and entrepreneurship [2]. Reasons that require a high exigency on individual’s formation and capacitation, looking forward to improving their environment and to lead social changes process.

This is how knowledge society is always moving forward to have better productivity and to be more competitive, and in that purpose, it prioritizes accreditation, pedagogy, entrepreneurship and internationalization.

Consequently, university is positioned as the social institution where freedom of thought, knowledge production, and ideological diversity, are key elements in favour promote innovation, competencies and skills from different areas on students [3]. Another important aspect is about the scenarios that information technologies and communication has gained inside new educational models and knowledge transmission [4].

The “Universidad Francisco de Paula Santander” is aware of this situation and don’t limit its efforts on review and correct, looking at the same time society requirements, academic programs and pedagogy models. The case of study highline the role that economic and business sciences play, when assume on its orientation the design of strategies which impact the whole functional areas inside organizations and
its integration of both intern and extern factors, also on the comprehension and improvement of its performance in a globalized environment [5].

Additionally, it includes aspects like knowledge management and complex thought, which has to prepare the bases of a pedagogy-transdisciplinary model in order to show, in first place, the discordance between the traditional pedagogy model and students necessities; second, the asymmetry between programmatic contents and pedagogical models in front of the pertinence of the academy on the social development.

There is a diversity of the elements which motivate to raise the research question, ¿Which are the conceptions and contextualization of knowledge management to be used in the pedagogical process on economic and business sciences?

Question addressed initially in the theoretical development of the knowledge management and which origin, according to Minakata, it’s given “as an awareness to the value of knowledge as resource and product from the knowledge economy in the information society” [6].

Regarding to the elements which are involved, Farfán and Garzón says “the idea of management indicates in some way, the organization, planification, direction and control of process looking to conform some objectives. On the other hand, when talking about knowledge, it formation from exterior and interior, and recognized it, order it, store it, evaluate it, and then, emishows that an organization, like any human been, is committed to a dynamic which captures int a respond to the exterior, based on that information and encompassed in the total of the information stored attempting a result” [7].

Now the question which link the knowledge management in the pedagogical context, transit around the definition of pedagogical knowledge, which according to Becerra and Gallego, is “That set of nations, concepts and ideas which have an interdisciplinary character, which build and rebuild the professors in a constant way, in a dialectic relation with the context and in a particular historic moment, about the process of human formation and, for instance, about the teaching, learning, curriculum and educational organization processes, regarding to an integral conception of the human being” [8].

Knowledge which refers to knowledge thought proposed by Morín, which makes a form of behave, model and include the theoretical contributions in various disciplines [9] and, Vargas et al., adds “the knowledge thought aims in favor of permanent tension between the knowledge following which is recognized as incomplete and which isn’t fragmented and departmentalized. (…) complex concepts gives the self-criticism means which also gives a place to another epistemological natural development, without the absolute control of knowledge and of a monopolized true” [9].

This epistemological development, according to Tobón and Núñez, slowly began to frame inside of the general field of sciences of complexity, like the autopoiesis, the adaptiveness complex systems, the chaos theory, dissipative structures and fractal geometry [10].

This is how the importance of incorporate the complex thought to the curricular design of economic and business sciences is supported, according to meet cognitive proficiencies, innovative, high quality, and adjusted to the contexts, management systems, and knowledge transmission, which are integrated and allow the progress and development according to the actual society requirements.

2. Methodology
This research is formulated from a qualitative perspective in the way that it brings attention to what people says, think, feels or do, their cultural patterns, process and the mean of their interpersonal relations and with their environment [11] in that way, the study was based on the phenomenological-hermeneutic paradigm, reason why it is accurate to do a meticulous and detailed analysis about the phonemes which are evidenced in the reality and discourse, for instance, gives clarity about how and when are generated the contributions from key informants.

As complementary method, it was chosen ethnography to the interpretation and depth analysis of the interviews. The ethnography, according to Goetz and Lecompte has a holistic character and pretends to construct a description to global phenomena in their diverse context and to determine, according to them, the complex causal relations and consequences what affects the behavior and the beliefs in relation to
those same phenomena [12], and due to that hermeneutic and interpretative connotation, it is a tool more than accurate in order to discern what is happening around the object of study.

The present paper show the results of three different groups of key informants, (students, professors, graduates), therefore, after being applied the precepts of the fundamental theory of Strauss and Corbin [13] based on codification (open and axial), categorization and the microscopic analysis, this processes were considered in order to make a triangulation of the information between students, professors and graduates, having identified previous categories (knowledge management, complex thought, pedagogical model, transdisciplinary focus and economic and business sciences) with help from the informatic program ATLAS T.I 7.0 and what gave as result the pre-concepts and concepts of which conceptions and contextualization of the knowledge management and complex thought emerged to be internalized in the pedagogical procedures in the designated academic programs.

3. Result
It is important to mention that according to the groups in mention, premises were raised in the case of students, such as: knowledge and theories, models and didactic focuses, economic and business sciences; to analyze professors, scenarios were generated (pedagogical action and knowledge management, theoretical complexity and the pedagogical model, the transdisciplinary and the economic and business sciences), according to their intentions at the moment to impart their class activities generating supplies which allowed the theoretical construction of the transdisciplinary model.

In the same order of ideas, graduates were taken into account as a main element in the moment of analyzing and reflect very close about the curricular structure and administrative to programs like Business Administration, Public Accountancy and Commercial and Finance management, were converted into facilitators to obtain the orienting axes to the knowledge management and its application to practice, complex thought Vs traditional theory, and, the pedagogy and the transdisciplinary focuses on the knowledge acquisition process.

3.1. Onto-epistemic reflection of the interviews in depth to the students
In this premise, two the previous categories are framed, which are the knowledge management and the complex thought theory; however, as it is represented in the Figure 1, the complex thought theory includes a big part of the socio-symbolic framework, cultural and intellectual which are managed nowadays at the moment to teach any academic program inside the university context, deriving the transfer, the management and the innovation, tripartite requirement to enforce human capital and the constant knowledge, joint to the diversity of knowledge perspectives, either scientific or daily, achieving theoretical-epistemological integration of the knowledge as a fundamental resource to overcome knowledge borders from the management and complexity.

Figure 1. Pre-concepts and concepts from the premise of knowledges and theories.
Related to the models and didactic focuses, the inclusion of two categories to this premise was achieved, those are the pedagogical model and the transdisciplinary focus; Figure 2, represents how students, despite of don’t having clarity about the forms to learn and acquire knowledge, they have knowledge about the intentionality of the developed questions in the depth interviews; which generated important bases to determine which pedagogical model, throw the incorporation of experiential scenarios of knowledge and strategies of knowledge acquisition, facilitating the use of an interdisciplinary pedagogy using instructional resources and pedagogic strategies that lead to the use of transversal knowledges axes, allowing contents correlation, with support of active and proactive strategies, for instance achieving a pedagogical model under the transdisciplinary focus.

![Figure 2. Pre-concepts and concepts from the premise of didactic focuses.](image)

According to experiences exposed by the students, Figure 3, represents that, starting from the academic programs definition from the school of administrative and economics at “Universidad Francisco de Paula Santander, Seccional Ocaña”, and looking to achieve the incorporation of the knowledge management and the complex thought into the transdisciplinary strategic model, it is necessary to get to the intersection of the dimensions of knowledge, as long as they are oriented to the humanistic focus and the labor field, with the purpose to train qualified professionals in the pacific resolution of conflicts and achieve citizen coexistence.

![Figure 3. Pre concepts and concepts from the premise of economic and business sciences.](image)
3.2. Onto-epistemic reflection about the interviews in depth from professors

Regarding to the pedagogical action, there are different ways to develop the educational activities which correspond to economic and business sciences. It is obvious that teaching and learning strategies are fundamental to the pedagogical processes, considering that the three big moments of all academical activities are analyzed, which are the beginning, the development, and the end. In the other hand, processes which came off from the knowledge management as innovative lines of action with the intention to improve the existence and to guarantee the success in the implementation of new pedagogical models to the economic and business sciences teaching. As can be seen in Figure 4, synthesize the founded concepts and pre-concepts which are related to pedagogical action and knowledge management.

Complex theory inside of a pedagogical model constitutes a reorganization of the curricular implementation, where various new elements came up, like the organization, the innovation and the development; hence that with the collected information it was observed that some professors totally agree to make changes. In Figure 5, the relations between concepts and pedagogical models are presented.

**Figure 4.** Concepts and pre-concepts about the premise of pedagogical action and the knowledge management.

**Figure 5.** Pre-concepts and concepts about the premise of complex theory and pedagogical model.

3.3. Onto-epistemic reflection about the interviews in depth from graduates

Knowledge management intention recalls over the creation of organized networks of knowledge into the plans and programs reflected in the curriculums with the noble mission of dabble into new knowledges and theoretical postulates which after being applied and operationalized could generate new spaces in function of the actual society’s exigences, and to the changes and transformations which daily impact social groups and men in a direct way. Now, the collected information showed that knowledge management is immersed into the institutional and classroom management, achieving the transference of knowledge using the systematic processes implementation, activities focalization and continuous processes, achieving substantial academic changes, through the development of competences which are showed by Figure 6.

Complex thought has opened new horizons and new ways to conceive teaching, using since transversely to complementarity, or in its defect, the transdisciplinary, in that way it has leaved apart the
traditional theory of teaching and learning which does not achieve the adaptation to the professional formation expectative. Hence the interest to specify what graduates are expressing as key informants in the research where to give a feedback from complex theory to traditional theory is considerate as a fundamental thing, and in that way generate constant reflection processes and evaluation using the didactic technique of cases analyses, as can be seen in Figure 7.

According to pedagogy and to the transdisciplinary focuses, in Figure 8 the informants conceptions are observed, which converged into signaling the provision to implementing a model to hook students and makes them entrepreneur entities with the capacity of confront the daily changes that today’s society is proposing. Giving the collected information, a pedagogical model could be noted respecting the teaching precepts and the objectives of didactic, to reach an transdisciplinary pedagogical focus under the dialogue of empiric knowledges and scientific, strategies, techniques and learning resources which leads to a transdisciplinary characterization.

**4. Conclusions**

In which correspond to the onto-epistemic reflection about the information given by students, it is important to highline that a bunch of categories was proposed, which at the end allowed to see the
concepts and pre-concepts that were expressed by students in the interviews, in the same way, the first theory bases will be established which are going to allow the creation of the theory contextualization with a structure based on the results from this research. When conjugate the previous concepts, it was observed that conceptions and contextualization from the knowledge management and the complex thought, to be interiorized inside the pedagogical processes which conform the business and economic sciences, these are very valuable contributions to rethink the curricular structure of the programs from the business and economic sciences school in the “Universidad Francisco de Paula Santander, Seccional Ocaña”.

Regarding to the onto-epistemic collected reflection from professors, it was perceived a very good disposition to do some changes in the way to learn and conceive teaching methods; maybe these elements could be conjugated and programs of the school of Business and Economic Sciences could be transformed in one of the most demanded; which allow us to see that inside the interdisciplinary model that is formulated, exists the form bases and ways to implement the various programs that belong to the Business and Economic Sciences in the university; aspect that is enriched when the contributions of the process main characters are taken into account.

And regarding to the onto-epistemic reflection from the graduates, it was possible to demonstrate the disposition to improve and apply new teaching models with the intention of canalizing actions in function of looking for an ideal focus of teaching, which guarantees success and in the same way, the curricular design of the areas from business and economic sciences, looking for transform the programs in the ideal place to the formation of professionals with relevant competences according to what a globalized world is requiring, and which satisfies society expectations, in effect, it is easy to observe that a pedagogical model with a transdisciplinary focus is a new thing, because it is focused and concentrate all its precepts in the generation of a new product, which could be easily inserted inside the dynamic of the changes and advances what today’s society is facing.

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