General teaching: a framework for virtual teaching

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Abstract

Pedagogical and teaching practices have their justification in pedagogy and in the conceptions made by teachers in their practice; likewise, didactic practices are anchored in general and specific didactics according to the area and how we are required to teach. This last aspect is the focus of this research in order to reflect and analyze how teaching is carried out in the virtual modality at the higher education level.

The purpose of the study is to identify the beliefs and perceptions that higher education teachers have about general and specific didactics. The guiding question is: How close are university education teachers to didactic practice, and has the teaching-learning process in the university environment remained a teaching practice with a transmissionist tendency despite the advances in digital technological resources for education?

An open survey was applied -through virtual mediation- to virtual education teachers from different areas of knowledge, whose academic training is not pedagogical. This made it possible to identify the concept of didactics they have and the relevance of the term in teaching practice, allowing us to glimpse its use and viability in education with and through virtual media, in addition to the demands that higher education must assume in the preparation of teachers in teaching and learning.

Keywords: General didactics, virtual didactics, specific didactics, teaching practice.

Introduction

Different concepts and categories related to pedagogy, curriculum and learning are used inadequately by teachers and managers of areas of knowledge other than education to talk about teaching in higher education; the same happens with didactics, which they correlate with strategy, resource and instrument. Although institutions try to produce books, manuals, instructions and quote experts in pedagogy, the term didactics is still foreign to those who are trained in health, engineering, economics, finance, and other professions, and enter the world of teaching. The lack of understanding that higher education teachers have about didactics makes their interest revolve only around pedagogical models, approaches and methodologies for teaching, leaving aside fundamental questions such as what, when, how and why to teach.

The same problem arises when determining the conception that teachers have about the object of study of specific didactics. When they are used for teaching basic areas and the particularity of knowledge, it would seem that everything is the same, which becomes makes it difficult to design new strategies in order to make learning efficient and effective.

In view of the above, it is important to take up again the implications of didactics in higher education and how to optimize the elements that configure it as a discipline, strengthening the intentions of university training, which would lead to interdisciplinary, flexible professionals, eager for knowledge.

The objective of this research is to establish the conception that university teachers have of general and specific didactics and what are their connotations in the training of professionals. From this considerable difference, demonstrated in the practice and theory of these two didactics, it will be possible to establish if there is a framework for an approach to the concept of virtual didactics.

Development

General didactics can be seen as a discipline by different scholars of the subject, however, in educational environments there is difficulty in understanding its praxis, because, on the one hand, the principles that support it are abstract and on the other hand "...comes from the belief that there is an intimate and necessary relationship between the processes of real personal experience and education" (Civarolo, 2008, p.127) which means that didactic practice is adapted and assimilated from the particularities of the specialized sciences or from the way in which the teacher was trained.

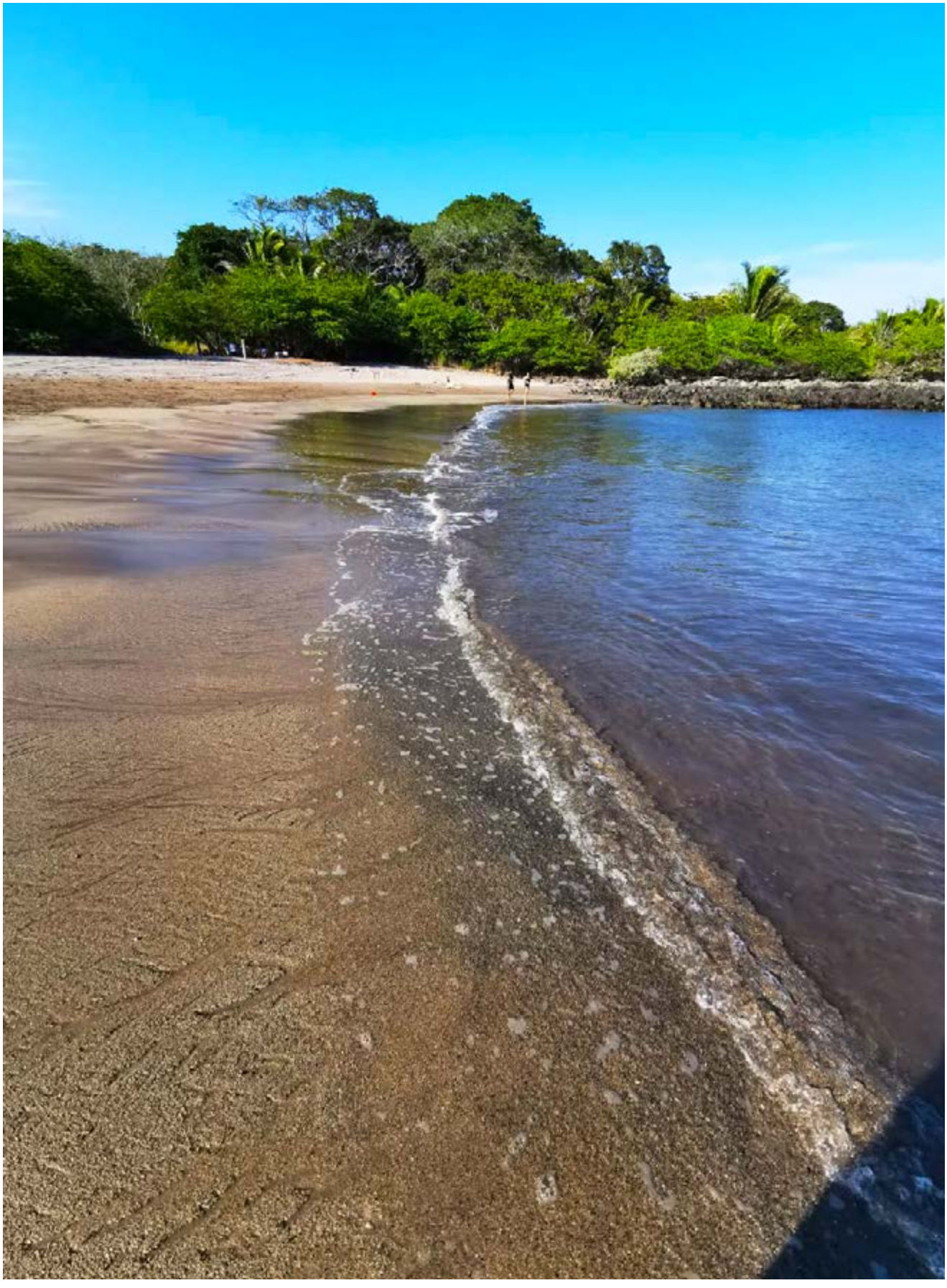
Therefore, in order to find the particularities and challenges in teaching, it is necessary to identify the elements shared by general and specific didactics, it is necessary to retake the concept of general didactics. For the particularity of this research, it is understood as a discipline, as proposed by Medina Rivilla and Salvador Mata:

> Didactics is the discipline or rigorous treatise of study and foundation of the teaching activity as it favors the formative learning of students in the most diverse contexts, with singular incidence in the improvement of formal educational systems and the micro communities involved (school, family, multicultural and intercultural) and non-formal spaces (2009, p.7).

Therefore, didactics is the discipline that deals with the relationship between knowledge, teacher and student; a triad that is not absent, even if we speak of specific didactics or, in more recent times, of virtual didactics. The areas where didactics is developed are wide and not only schematized in the school classroom or in a space where its intentionality is to teach or learn (seminars, congresses, workshops, among others), but in any space or action where the relationship of the triad is sought, even if the mediation is diverse, versatile or innovative.

Didactics is the discipline whose mission is to concretize the ideals of education, to makes us think about how and why, although in this era of utility and products, the questions have turned into what for. This, together with the competencies and purposes, is what helps us establish the mechanisms that are assumed in education as horizons for learning and students' profiles.

However, the "what for" constitutes a major challenge for the teacher, since it involves overcoming the possible errors that may occur in teaching, avoiding the influence of misconceptions, product of the context (family, friends), the media, culture, among others. This should not be understood as a withdrawal, rejection or minimization of the student's prior knowledge, but rather as the possibility of achieving communication and an interactive dialogue to obtain new knowledge that will allow the learner to grow in reflection, autonomy, knowledge and humanity.



Another definition of didactics is the one constructed by Zabalza (1990, p.139, cited by Dionicio, 2014) defining it as a "conceptual and operational field which is concerned with the problem-facts that requires an organic system of information, decisions, resources and various controls around teaching".

However, teaching is not far from learning, and although it would seem that didactics focuses on teaching, learning is its objective. A teacher good at teaching is worthless if their students do not evidence it in their actions.

> ...the teaching process is intertwined with the learning process: they are like two sides of the same coin. The teaching/learning process (communication) is an interactive process in which the student also sends messages to the teacher, parents... it is, therefore, a bidirectional communication (Carrasco, 2004, p.37).

Indeed, in order to consider didactics as the generator of specific or special didactics, as Carrasco (2004) calls it, it is necessary to recognize its scenarios of coverage and incidence. In the case of general didactics, it deals with "the study of the principles, norms and practical guidelines that can be used in school work" (Carrasco, 2004, p. 37). In the case of special didactics, it refers to each area of knowledge. Finally, there is the scenario where these two didactics are linked to the characteristics of the learners, constituting "differential didactics" (Carrasco, 2004, p. 37).

General didactics then becomes a concern of higher education institutions, because their teachers do not have pedagogical training for teaching, but they are professionals recognized for their knowledge:

> It is a concern of the university directors and teachers to propose innovation in the didactic methodologies that enact and contain efficient and effective didactic strategies, after a century of technology where teachers' and students' discourse is incorporated, but which requires anchoring some purposes that enable the capabilities of those who are immersed in the culture of information and communication Rodriguez Camargo & Buitrago, 2017, p. 120.

Although general didactics is the mother of specific didactics, according to the allegory made by Alicia de Camilloni (2002), it is remarkable to observe that in higher education specific didactics are based on general didactics because in the particularity of science, discipline, knowledge, they scarcely tie in with what is contemplated in the basic areas of knowledge. For the teaching of a particular profession, progress is made slowly by doing research and conceptualizing for these teachings from the teaching practice, or the didactics of the basic sciences is taken up again, but there is still scarce writing about didactic processes especially for medicine, dentistry, engineering, and architecture.

As an elongation of general didactics, without being the same, the specific didactics of an area, of the specific knowledge which uses "constructs... [and] manages to penetrate into the internal structure of the same highlighting aspects and nuances that, although may seem obvious after having been found, are hidden before a general and prematurely valuative look of this practice" Pochulu, 2014, p. 128.

It would be difficult to differentiate exactly which is the field of general didactics and where the space of specific didactics begins, without mutual connections, because they share pedagogical and educational principles. However, the nature of specificity is based on knowledge and its mastery. The academic space of specific didactics progresses with conceptual differences among them: some authors (Camilloni, 2002; Civarolo, 2008; Chevallard, 1998) believe that the essence of science didactics is indicated by the object of knowledge; others Bolivar, 2005; Shulman, 2005, point out that this essence is the conceptual and teaching expertise of the teacher. In the case of the present research, the difference

between general and specific didactics still has common nuances.

Concretizing the idea, specific didactics, although focused on the disciplines, is also installed in the practice that professionals make of their knowledge. Thus, centered on knowledge, the object of its specific teaching nature can be recognized, and in professional practice it is established from the development and evolution of its curricular interactions, determining a relationship between knowledge and its teaching. From this starting point, it should be clarified that specific didactics is basically distinguished from general didactics, in the particularities of teaching knowledge, because in curricular processes, evaluation and its quality are shared.

> Two fields from which general didactics have made contributions that could not have emerged in an integral way from any of the specific didactics are curriculum theory and the theory of learning assessment and teaching quality (Dionicio, 2014, p.13).

Now, we talk about virtual didactics, but more as a resource, a medium that has been transforming the way of teaching and the reflection on the impact generated by teaching in virtual spaces. But in the case of virtual teaching and learning, the error expands through cyberspace, comprehension is stored with a copy and can, on some occasions, become viral. Under all these pressures that are established in the use of mediation, virtual didactics has been conceptualized as a reflection from praxis.

From these definitions we get to the research objective: to discriminate the conception that university teachers have of general didactics, specific didactics and the type that arises from technological means (called virtual didactics). This goal becomes an axis of research because the conception that teachers have of each of the three -didactics- affects the quality of teaching, in their process of transformation and innovation to implement teaching and learning alternatives. Thus, neurodidactics, social and experimental learning, hybrid learning, flexible learning, online learning, just-in-time learning, experiential learning and service-learning have been introduced.

Methodology

The fundamental characteristic of this research is its qualitative character, which presents a concise methodology to establish the recognition of a research practice that allows us to be flexible and locate the social context. An analysis was carried out from an interpretative epistemological approach (hermeneutic) which helped us review the configurations and relationships between the subject and the concept.

> Qualitative research, on the other hand, is epistemologically nourished by hermeneutics, phenomenology and symbolic interactionism. Hermeneutic thinking assumes that social actors are not mere objects of study as if they were things, but that they also mean things, have a voice and are reflexive (Monje, 2011, p. 12).

The interest of the inquiry was to know the conceptions that higher education teachers have about the different didactics and how they establish relationships of similarity between teaching practice and what they have learned from their training. Considering that "qualitative research is interested in capturing social reality "through the eyes" of the people being studied, that is, from the perception that the subject has of his/her own context" (Monje, 2011, p. 13).

The above allows us to have a frame of reference that does not indicate a generality, but a tendency of use and understanding of the terms. The population studied is made up of higher education teachers studying for a master's degree in Education at the Universidad la Gran Colombia (Bogotá). All the master's degree students work as university teachers

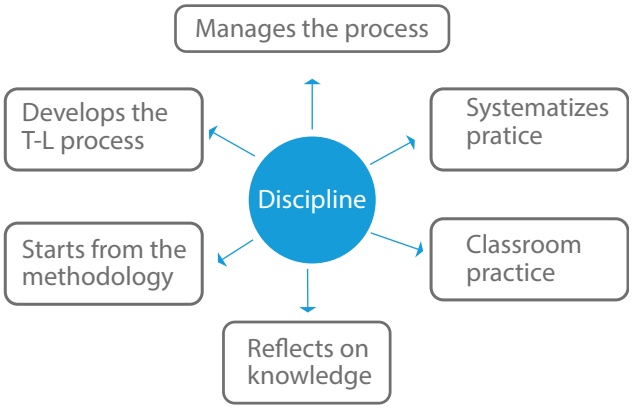
and work in different time slots, so the virtual interview technique was used in a Google Drive form. 30 people participated, becoming a simple random sample.

The questionnaire consisted of four questions, which sought to analyze their conceptions in this regard:

- What is your conception of general didactics?
- What is your conception of specific didactics?
- What is your conception of virtual didactics?
- How do you teach information and communication technologies?

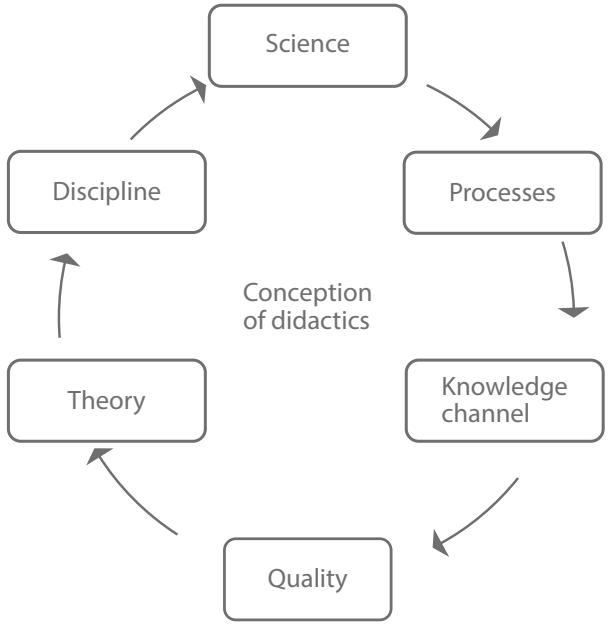
Results were presented by question, which corresponded to each of the theorized categories. Answers were based on a classification of the concept, which made it possible to correlate the words of repetition and the relationship with it. For example: "is a discipline that systematizes pedagogical practice", the words to be related are discipline and pedagogical practice; these in turn were correlated with other concepts that are articulated in their meaning (figure 1).

Figure 1. *Words related to the discipline category. Source: own elaboration.*



First question: What is your conception of general Didactics? The results were varied and were divided into six concepts: science, processes, knowledge channel, discipline, theory and quality (figure 2).

Figure 2. *Categories related to the conception of general didactics.*

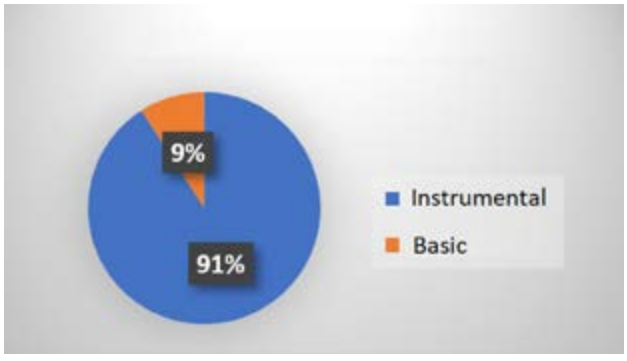


Source: Own elaboration.

Each of these concepts has different positions which are grouped in relationship matrices that allow semantic associations to be made. The first concept is *process* (4 teachers), i.e., it is seen as a step by step from teaching to learning, it could even be confused with *research*. Regarding *knowledge channel* (12 teachers), the category is related to methodology, support tools, strategies, tool system, activities to build knowledge. In the case of *science* (4 teachers), the relationship is established with "study" of techniques, principles, norms, teaching methods. When it is defined as theory (2 teachers), it is related to the reflection of experience and from the objectual aspect of teaching. As a *discipline* (5 teachers), it systematizes practice, pedagogy or "that which allows the development of pedagogy" (teacher No.

3). Others determine that it is a "discipline that reflects on knowledge and the ways in which it is taught" (teacher No. 5). The last category is *quality* (3 teachers), determining the procedures to achieve educational quality, conceptualized as improvement in communication and in the knowledge of an area. This means that 91% of the teachers interviewed consider general didactics as instrumental or methodological and only 9% consider it as a discipline (figure 3).

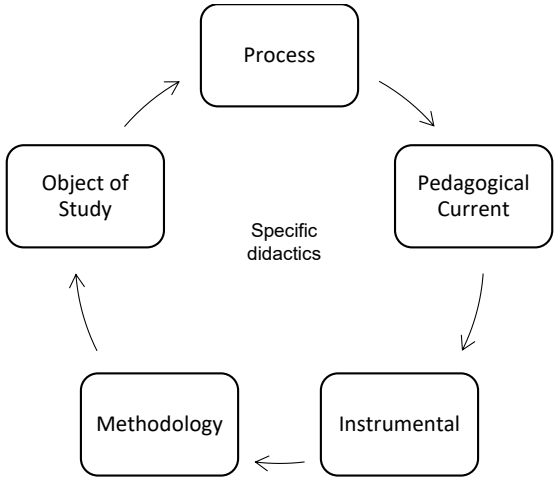
Figure 3. *Percentage of responses for the conception of general didactics.*



Source: Own elaboration

Second question: What is the conception of specific didactics? They are grouped into five concepts as can be seen in figure 4.

Figure 4. *Categories related to the conception of specific didactics.*

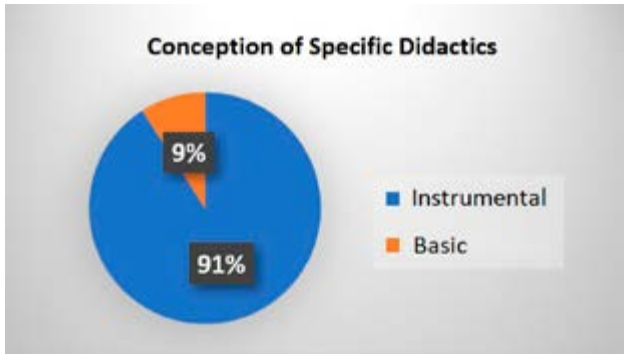


Source: Own elaboration.

This category is found in a relationship matrix that allows us to see the associations producing a designation of concepts such as: *science* (5 teachers), because it studies the techniques, instruments and methods of teaching, the best way to acquire skills, solve the problems of the area or establish the foundations to solve the problems of teaching and learning; *transposition* (5 teachers), the category is related to the passage of concepts from the microscopic to the macroscopic world, the passage of knowledge from different areas, the descent from knowledge to real knowledge, the particularity of a science and that which makes it possible to transmit information; *method* (4 teachers), it refers to particular ways of transmitting knowledge, to understand it or to the acquisition of meaning in the way of reaching it. When it is defined as a *subcategory of general didactics* (2 teachers), it is related to specific knowledge and reflection for the knowledge of particular areas. As an *instrument* (7 teachers), it is a teaching and learning technique or procedure, as well as support tools for the class that facilitate learning, it is the relationship between resources to obtain products and, finally, it is the study of teaching techniques and methods. There remain 5 teachers, for the totality of the sample, who say they do not know them or apply specific didactics.

This determines that 91% of the teachers interviewed consider specific didactics from a basic management and 9% consider it instrumental (Figure 5).

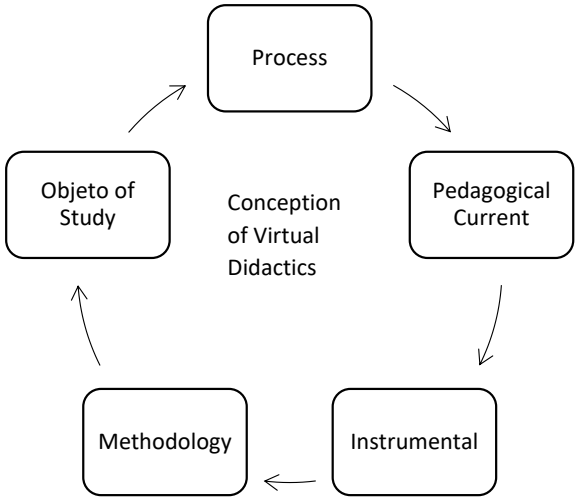
Figure 5. *Percentage of responses for the conception of specific didactics.*



Source: own elaboration.

Third question: What is your conception of virtual didactics? This category is found in a relationship matrix, from which five concepts are obtained that allow semantic associations to be made, these are: process, pedagogical current, instrumental, methodology and object of study (Figure 6).

Figure 6. *Categories related to the conception of virtual didactics.*



Source: Own elaboration.

The answers are distributed as follows: *process* (7 teachers), this concept is considered from the self-regulation required by the student and the way to provide solutions. Likewise, it is considered as: teaching techniques and methods, that which contains the resource, that is, it is an interactive space of social or educational encounter; a pedagogical activity designed by the teacher where virtual environments are involved. Similarly, it is related to spaces and, by reducing them for teaching, "... it is a form of education where integration is more distant with the teacher since the fundamental piece is the Internet" (teacher 2).

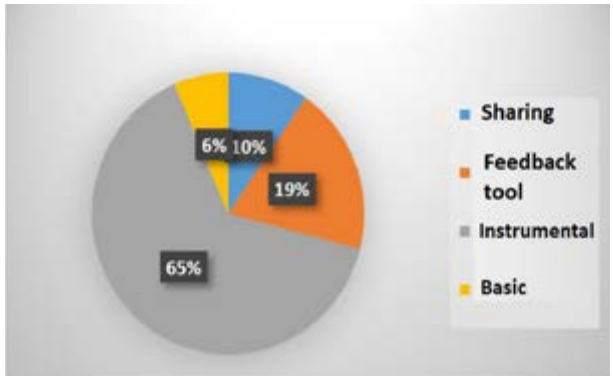
The next concept is *pedagogical current* (3 teachers), where it is related to connectivism, as it is one of the orientations that has been pointed out as pedagogy. The third concept is *instrumental* (14 teachers), which is related to technological resources, tools to improve skills, forms of individual or group teaching, as well as the use of information and communication technologies and interaction. They point out that it is technology that allows simulations, group and individual relationships and self-regulations.

Another concept is *methodology* (5 teachers), related to processes of tool use, which involves planning and the study of teaching techniques and methods from a virtual space.

Finally, *functionality (*3 teachers) is proposed as an educational scenario beyond the physical limits, through which the scope of the pedagogical objective is expanded and the same object of study of didactics is maintained.

That is, 65% of the teachers interviewed consider virtual didactics from an instrumental conception, 19% as a feedback tool (although they point it out as feedback), 10% as socialization processes and 6% as knowledge for the basic management of technologies within education (figure 7).

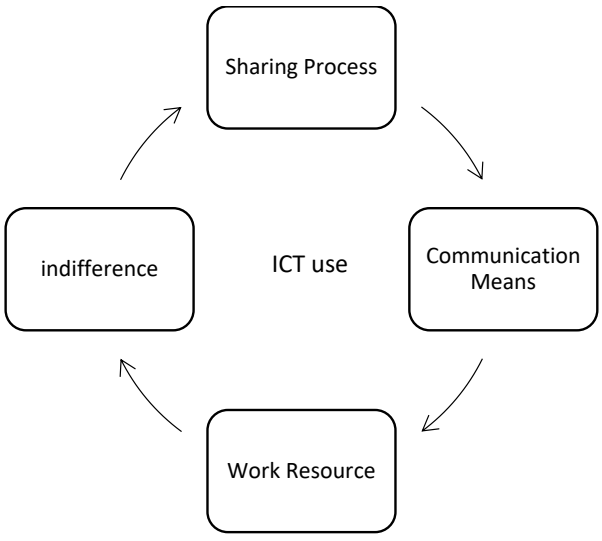
Figure 7. *Percentage of responses for the conception in virtual didactics.*



Source: Own elaboration.

Fourth question: How do you teach information and communication technologies? This category is found in a relationship matrix, from which four concepts are obtained that allow us to see semantic associations, these are: sharing process, means of communication, work resource and indifference (figure 8).

Figure 8. *Categories related to the use of information and communication technologies*



Source: Own elaboration

Answers are distributed as follows: *sharing process* (3 teachers), this concept is considered from the search for information, a cultural transformation when applying technology; it includes the processes of interaction to obtain a better application; a meeting for the transmission of information. It is considered as feedback of information obtained in the network.

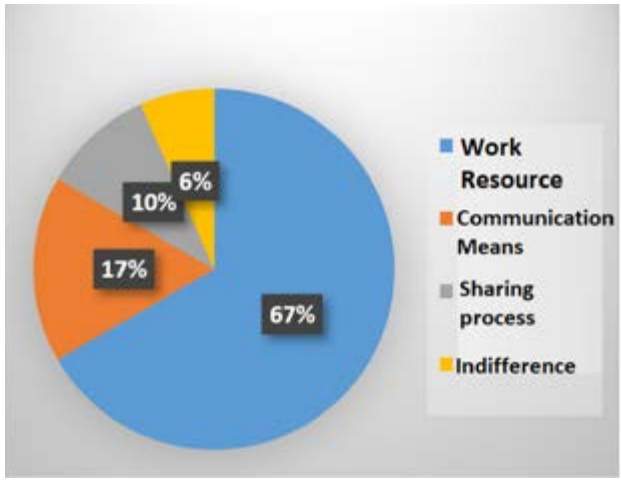
The next concept is *communication media* (5 teachers), related to the way of presenting information, how to analyze information and be able to put it to work, as a practical theoretical component when interacting with technology, with the immense amount of information and the way to understand it.

The third concept, *work resource* (20 teachers), is related to the moment of teaching its use, the availability of the tools in the institution, with software, with the moment of exploring and experimenting, since they take it to class and play with it. In addition, they incorporate them in class at the moment of discovery. The uses of the resources denote innovation and creativity to approach new contexts; likewise, they designate a practical action of the theory. And it is considered as a mechanism to improve practices by using new tools, besides being a fundamental element in the globalization processes experienced by today's society.

Another concept found is *indifference* (2 teachers), that is, apathy to use them in class, since they are considered a distraction for teaching; on the other hand, they are only used at the beginning of the teaching process, but it is not a constant.

This means that 65% of the teachers interviewed use information and communication technologies in teaching from a resource conception; 19% as a means of communication, deriving the feedback tool (although they point it out as feedback), 10% for sharing processes and 6% view them with indifference for the basic management of technologies within education, since they consider that they do not contribute (figure 9).

Figure 9. *Percentage of responses on the use of technologies in teaching.*



Source: Own elaboration.

Conclusions

In view of the results and the theory developed, it is found that the conception of general didactics has points of agreement in relation to the association made with pedagogy, however, in a high percentage, teachers point out that it is a channel of knowledge, a consideration from the instrumental part, leaving aside the mental

processes, skills, competencies to be developed, the relationship with knowledge. It is optional that all the elements of didactics converge, the important thing is that a resource is used, an instrument in teaching, so that the act of teaching practice is already educational, and although it is called a channel of knowledge, it is still the resource to make the passage from information to knowledge.

There is a minority that recognizes it as a discipline and leaves it as a general reflection of teaching procedures. This determines that learning is part of the educational process and has little importance in general didactics, since it focuses on teaching.

The panorama is more discouraging with specific didactics, since it goes from the conception of science to an instrument, which demonstrates a total lack of knowledge of the theory in this regard. And although it could be excusable for teachers entering higher education from a profession other than pedagogy that their knowledge of didactics lacks pedagogical literature in areas such as medicine, engineering, accounting, administration and finance, among many others, it is not excusable for institutions that know their shortcomings and do not establish training programs in this regard.

Specific didactics are conceptualized for the basic areas, which leads to improvisation at the moment of teaching with a view to learning in higher education. In the case of virtual didactics, the field is still infertile, since it is specifically confused with an instrument that allows to activate a process or it is associated with a methodology in which knowledge is operationalized. These instruments are related to the quality and improvement of teaching and learning processes and are seen as a need for communication in them, which can be

understood as teaching with technology. And although it is established as a work resource, the idea that didactics is the use of resources, instruments, whether from a general or specific scope or in a virtual environment, continues to persist.

The challenge for higher education institutions, where professionals from different areas of knowledge enter without knowledge in pedagogy, is to provide training workshops before these professionals reach the classroom. This would possibly avoid problems of teacher-student interrelationships, desertion, apathy towards teaching, poor academic production, among others. If the lack of didactics in teaching and evaluation is corrected, the quality of learning could be remedied and an integral formation of its graduates would be projected.

Indeed, the differences between general and specific didactics are not clear and are determined from the instrument, resource or process, the same happens with virtual didactics, which allows a theoretical framework to determine what virtual didactics is and the following definition is proposed: the discipline in which the triad of knowledge proposed for general didactics varies by having mediation at the center of its processes, which is not considered as a resource but as an entity of synergic interrelation between all the actors of the teaching-learning process without a specific direction of beginning or ending, since the feedback that arises from the same interaction of information that is later transformed into knowledge is cyclical, which denotes a method in which the role of the teacher is that of an *academic contributor.*

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