

# Representation of the Contextual Framework of an Applied Research

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## Abstract

When a Higher Education student considers the possibility of developing an applied research, regardless of the academic level they are studying, it is common for questions to be solved such as: how to interpret the information and data that are manifested around their investigation; or determine the most appropriate position to develop their inquiry in the most objective way possible. From our perspective as counselors, we observe that these issues produce many doubts among students, and that sometimes they cause a situation of temporary blockage that is complex to manage. If to this situation is added the need to communicate regularly to their counselors the progress and status of their research, it is possible that the student experiences a process of cognitive dissonance between: what they observe, what they think, what they manifest, and what they are capable to express through the content of their writings. Focused on this problem, our theory on the chaos of the creative, provides some keys as a solution that is useful to control the information and data of an applied research, make an abstract scheme as a representation of a possible contextual framework of exploration and epicenter of the different stages of your research.

**Keywords:** Contextual framework; verbal communication; non-verbal communication; written communication; higher education; applied research.

## 1. Introduction

At present, the majority of higher education institutions are immersed in a process of conceptual development and evolution of their study plans. One of the most outstanding initiatives in this process is the development of applied research activity at the various academic levels, as a generating activity that is useful for the bidirectional transfer of knowledge between academia and society.

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We also observe in research activity how the limits of qualitative or quantitative methodologies give way to a reformulation called mixed, in which the theory "argumentation" and the practice "experience" are destined to complement each other in the development of the research activity. Our research activity comes from the pragmatic tendency to bring practice closer to theory and is situated in the development of applied research as the means of providing possible solutions and answers to problems that affect society in general. We stand out as authors like Hernández, R., Fernández, C., & Batista, M.P. [1] with their published works they attempt to guide students in a general way with essential criteria of research activity. We intend to go further, and we place ourselves in a more operational position, as people who perform the functions of advisers of various jobs and levels of research. From this analysis we define two trends: the common one, the criteria that can be applied to any type of research at the different levels of Higher Education; and the specific, which depend directly on the characteristics of the discipline where it is intended to develop this research activity. But we will observe that even if correctly complying with the criteria and recommendations of the mentioned sources, the student still lacks something to assimilate, since most of them react in a habitual way with these questions: am I immersed in chaos? What am I supposed to do now? or how can I continue? Among other issues. These same issues also negatively affect the research activity of academics and counselors themselves, when they are advised to publish their progress on a regular basis. It is a chain that configures what we call scientific production, and that all researchers must comply with in order to advance in their academic career. This indicates that in any research activity there is a specific communication activity that takes place in parallel. And that this communication has the purpose of exposing in an orderly way, to a certain scientific community, the advances and possible results of an investigation, according to the scientific protocol established at the international level. From there to, investigate and communicate we can consider them as two complementary and inseparable activities. The analysis of this problem leads us to suspect that one of the possible causes might be the inadequate structure and the way of communicating the research activity that students develop. According to our theory on the chaos of the creative we can access two types of communication: a simple communication, in which the student designs an argument "message" that they intend to transmit to a receiver thinking that they will in no case respond, they will only value it; and another more complex, such as scientific communication, the one that the student who communicates the development of their research work, apart from emitting, needs to control the information and data that make up their argumentation, since their receiver "the academic community" takes an active position and requests clarifications or explanations of what they perceive. Therefore, we understand that it is in this type of communication where the problem is located. It is important to define that when we talk about communication we refer to three forms of expression that the student must control and align in the same direction: verbal (what they say through their voice), non-verbal (what they express through their body or uncontrolled actions) and written (what they express through their writings). This problem manifests itself "in a latent state" when a student is asked to communicate the progress of their work to their academic community. It is the moment when we observe that the three forms of communication that the student uses do not express the same thing "they are not aligned". For all the above, in this work we focus on proposing a useful method to make an abstract scheme that serves to represent the contextual framework of an applied research, with the purpose that the student can control the information and data of their research. With this, according to Pozo [5], a holistic strategy is defined to enhance its scientific communication.

## 2. Methods and systems

When we talk about scientific communication, we only focus on describing the work we do in Higher Education. An academic activity in which we use a certain protocol in order that students who are starting research activity can communicate properly. As senders who intend to direct their message to the possible recipients of their discipline, a role that academic advisers initially represent. We also emphasize that the communication style we use is determined and conditioned in the way and form by the discipline to which we address. Through this reasoning, we show that there may be as many variants or styles of scientific communication as there are areas of knowledge and disciplines. Therefore, in this work, we only highlight the general guidelines that constitute our "transversal" scientific communication proposal, as an approach that can also be used in any area of knowledge and, in turn, can be adapted to another discipline. According to the contribution of Gardner [2] through the theory of multiple intelligences "Our visual intelligence offers us through the definition of abstract schemes the power to visualize possible solutions to a certain problem". In this case, the visualization of the information favors the person investigating the memory of the data of their exploration. We understand that this quality is also necessary to control paralinguistic signs, such as the set of involuntary non-verbal actions and reactions that our body performs when we are faced with: fears, fears, uncertainty or other issues that condition the alignment of a non-scientific communication. verbal, verbal and written. Based on this reasoning, we set out to answer the following questions: *Does the visualization of a contextual framework favor the control of the information of an applied research? Does the control of the information facilitate the scientific communication of the person who investigates?*

Our work is supported by a qualitative methodology, based on the description and representation that a documentary method gives us, and that favors the capture of relevant information to propose an applied research. With this, we do not provide a rigid proposal, but quite the opposite. We propose a flexible proposal that may be useful to the person who investigates to find a certain position from which to explore the interaction of the subjects of the research that is proposed to develop. If we observe this problem and how the process of documentary exploration conditions the person who investigates, especially in the reactions expressed through languages: verbal (what is expressed with words), non-verbal (what we emit without using of words) and writing (what we express through writing texts). We verify that the holistic perspective that our work provides facilitates the development of the exploratory and documentary process of the person who investigates and in turn facilitates the communication that becomes a scientific document. What has been exposed so far allows us to maintain that the states of non-verbal, verbal and written communication are connected in a holistic way and should not be disassociated. And that for the researcher to have full control of the communication of his research, he has to work in each of the languages so that they are aligned in a natural way "with his own style" and that represents the evolution of the research activity. that is developed. In other words, what we express through words is reflected in the texts we write, and it must serve as a basis for communicating with confidence and security. Only then will we have full control of the information and also of our scientific communication. Therefore, we consider it necessary that in order to answer the questions posed in an investigation, the contextual framework where these questions are generated must be known.

We understand that the problem that arises in this work is not easy to solve, but we consider that our

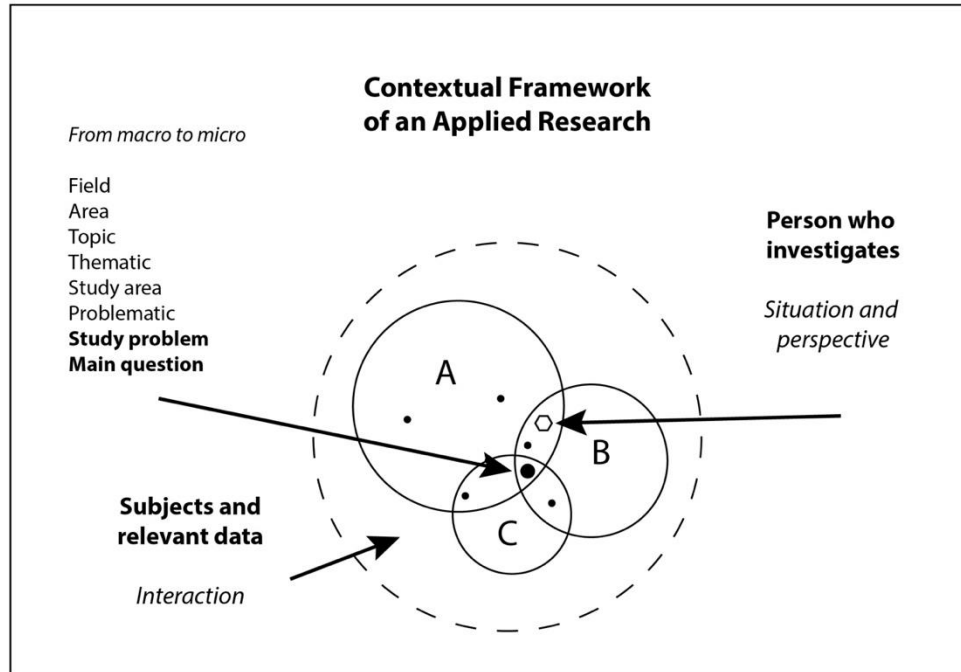
contributions represent a first step for people who initiate an investigation to work on a possible solution to suit them. From our perspective as teachers, we understand that the first effort should be directed towards detecting the possible degree of cognitive dissonance that the person who investigates is manifesting with their languages, in order to guide them and facilitate their alignment.

### ***2.1 What information does a representation of a contextual framework give us?***

Through the compound term "contextual framework" we refer to the definition of a hypothetical scenario, more or less precise, where the interaction of a determined series of study subjects is manifested. We represent this scenario through an abstract scheme that aims to expose the synergies between the subjects, as well as all the information and data that are directly or indirectly related in their individual and collective environments. Initially, we start from the definition of the main subjects that are involved in a specific problem. By placing them in a certain context, we represent them according to their importance and involvement in the problem we intend to explore, investigate, analyze and describe. It is important to mention that the representation we carry out must arise as the result of a previous exploration that will serve to represent and visualize a first scenario. Through the inquiry that the person conducting the investigation, the synergies and possible interactions between the subjects will be defined. Also, that this possible representation will only provide us with a possible visualization of a certain "temporal space" and of course, this will be remodeled and configured with the development of the research to provide a more precise visualization of reality. For this reason, it is common for the person investigating to be in different positions in this scenario, to obtain different perspectives on the same problem that he is exploring. For example, if we compare the work of two students: one who has "professional" practical knowledge on the problem; and another that has "academic" theoretical knowledge about the study area where the problem is manifested. Both students analyze the same contextual framework, but from a different perspective, therefore, the results they will provide will not be the same, they will be complementary. Through this example one of the main qualities of the method that we present is shown. For the person who investigates, the representation of a contextual framework is essential, since it will provide a specific perspective from which to explore, describe and analyze the information that is presented and the facts that are manifested. Another important issue to consider is the information that we are going to represent in a contextual framework. We always start from a macro perspective, which includes all possible information that is related to the research (all the data are relevant to a certain extent), reducible to a micro perspective, we locate the study area. The main objective is focused on understanding that all the different parts that make up a data field and how they are directly or indirectly interrelated. For this, it is necessary to know how the subjects interact with each other, and how the synergies act or who conditions them. It is important to remember that all the data that we are going to represent are related and that they are all relevant to some extent; fair is what we must prove. In Figure 1, we can observe a generic representation of 3 possible subjects of an investigation, mentioned as A, B and C. We observe how subject A is the most relevant, followed by B and C, in a given field of interaction. We also observe that, although the representation of the scheme has been made in a two-dimensional plane, this representation could be made in a three-dimensional plane. These subjects are represented in the shape of a circle or sphere so that the areas of interaction can be precisely delimited when they are involved in a certain problem. The areas that arise from the interaction of the subjects are areas in which the common data or information that manifests as the result of a certain interaction is located. Thus, we observe how when more than

two subjects interact, a third zone is created. Normally this area is where we focus our study problem. It is usual and necessary for a correct investigation to detect a minimum of three main subjects in order to carry out a correct data triangulation process and to have a three-dimensional perspective of the information that is described. From a representation, we visualize the following concepts from the macro to the micro perspective. We can define them as:

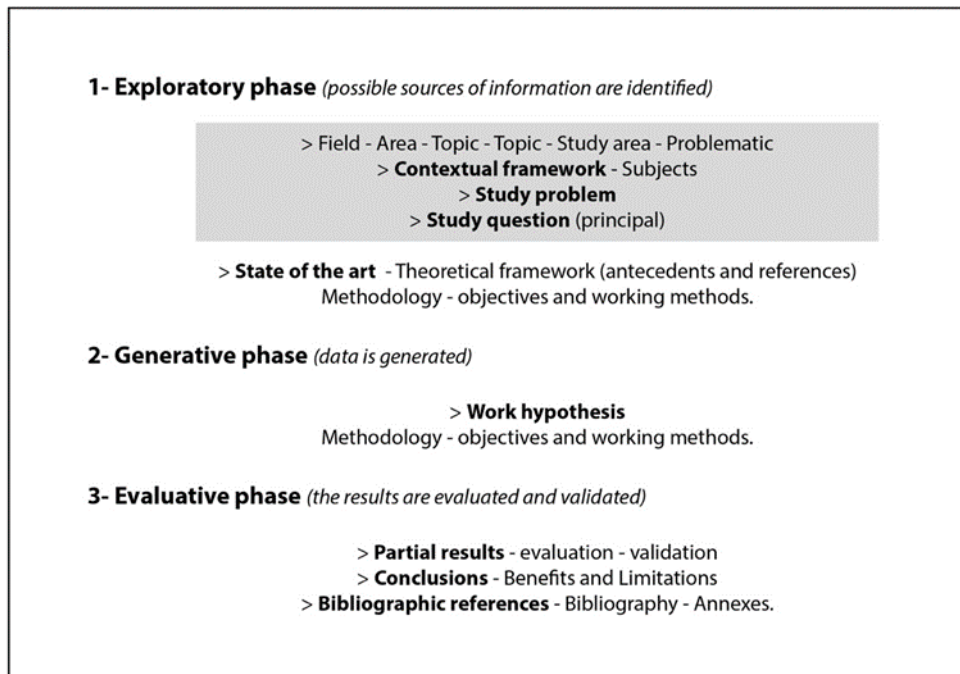
- **Field.** It refers to a field of knowledge, where research is accommodated: social and legal sciences; Arts and humanities, Architecture and Engineering, among others.
- **Area.** It refers to a discipline of a field of knowledge. With this we narrow down and delimit the scope of the investigation.
- **Topic.** It refers to a specialty of the area. It will also be one of the perspectives from which the person investigating will observe their contextual framework.
- **Theme.** It refers to a certain state of the question, where the selected subjects show their synergies and configure their level of interaction in a certain time space.
- **Study zone.** It refers to a possible delimitation where the person investigating will focus their attention and carry out their work.
- **Problematic.** It refers to a proposal for the definition of the actions and reactions that are manifested in a certain study area as a result of the interaction of the subjects. This interaction is what attracts the attention of the person investigating.
- **Study problem.** It refers to the approach of a possible event that manifests itself as a result of the interaction.
- **Main question.** It refers to the posing of a main question and other secondary questions that the person who investigates is asked to motivate the line of her research, with the intention of proposing answers to the study problem. The questions are basic to be able to define the objectives and formulate, if it were the case, the working hypothesis.



**Figure 1:** Representation of the contextual framework of an applied research. Own realization.

## 2.2 Where we place the contextual framework in an applied research

In a basic way, an applied research is structured in three sequential stages of work: It begins with the exploratory stage (with the investigation of possible information for its subsequent description and analysis), it continues with the generative stage (where the relevant data are generated), and culminates with the evaluative stage (where the results obtained are evaluated and validated). In Figure 2, we can observe the sequence of the three stages, and the main concepts that will later configure the content index of a scientific report are located, that is, where the data and results obtained in the research will be expressed through a scientific protocol. We understand that these concepts can be known by the reader, since they have been treated by authors such as Hernández, R., Fernández, C., & Batista, M.P. [1] we will only focus on situating the concept "contextual framework" that is the subject of our work. As we can see in Figure 2, the contextual framework concept, we place it in the first phase, the exploratory. It is useful at the beginning of an investigation since it serves to locate all the information before developing a possible description and analysis. We understand that to know the reason for an event we need to know and describe the context where that event has been generated. Therefore, we need to know the actors involved and how they have interrelated in the face of a certain event. Thus, the representation of a contextual frame provides us with different visualizations of a given time space so that we can analyze it from different perspectives.



**Figure 2:** Structure of an applied research. Own realization.

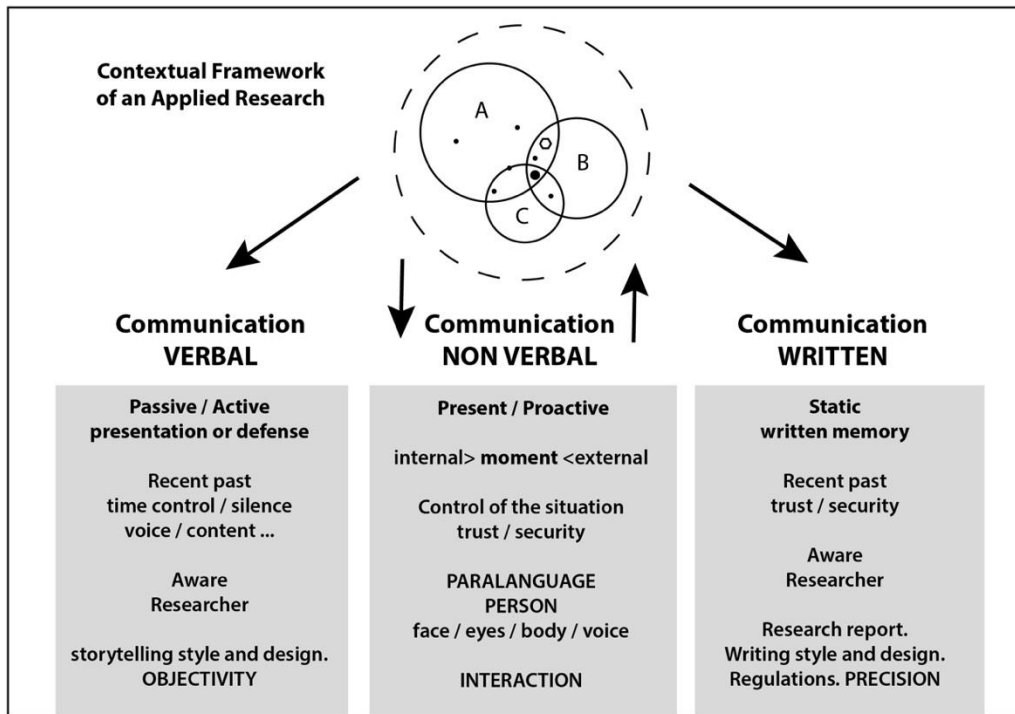
### **2.3 Verbal, non-verbal and written communication**

The results obtained in the development and application of the practical tests carried out have given us the possibility of opening a new parallel line of work from which to ask ourselves the following work questions: *Does the visualization of a contextual framework favor the control of the information of an applied research? Does controlling information facilitate student communication?*

When we began the practical tests applying our theory and method, at the various levels of higher education, we observed a series of apparently unpublished results that we did not expect to obtain, but that pleasantly surprised us by their effectiveness.

These results showed us that the representation of a contextual framework facilitated the person who investigates the choice of their position or positions before their investigation. From which she could explain her role and situation in a given context, and how she proposed to analyze and describe certain facts. We also observed how the control of the information and data facilitates the spontaneous manifestations and possible non-verbal reactions emitted by the person investigating, in an unconscious way before a possible presentation of the status of the investigation. And how the domain of the data enhanced the argumentation for a possible written narrative. For this reason, we are convinced that the control of information and data favors a possible alignment of communication languages: between the activity carried out, what is said, what is thought and what is capable of writing in their writings. In Figure 3, we represent this possible alignment between the three types of communication. Verbal communication goes from being passive to active, it favors the control of the

temporal space in a conscious way. It favors a narrative style and design in which communication is as objective as possible. Non-verbal communication goes from being proactive unconscious to a certain control from consciousness. From the internal memory of the information, it manifests the security of the moment and is projected outwards. It favors interaction through the control of the person's para-language<sup>1</sup>, providing them with confidence and security. In written communication that manifests itself in a static and protocol way through a written memory, it is controlled consciously and with precision by the person who investigates.



**Figure 3:** Alignment of non-verbal, verbal and written scientific communication. Own realization.

#### 2.4 Methodological notes

The work that we present is a continuation of a first work where we contribute the Theory about the Creative Chaos. Pozo-Puértolas [5] proposes an inductive method to visualize the information of an applied research Based on the applied tests of this theory and its method, carried out during the 2019-2020 academic year in a selection of students from different levels of higher education, we present the results we have obtained and also the advances that have been manifested during the process orientation of all tests performed. The essays were conducted at the bachelor, master and doctoral levels with students from Portugal and Spain. The essays began with the explanation to all students equally of the details of the Theory on Creative Chaos, and of the method for the representation of the contextual framework of an applied research. Pozo-Puértolas [5]. These explanations were presented as a master class in order to illustrate this working

<sup>1</sup> The paralanguage is a set of non-verbal elements of the voice, that is, it is the way in which words are expressed. It is one of the inseparable elements of non-verbal communication, along with kinesics, proxemic and chronic.



method to the students as much as possible. It was also explained that the method provided is in the experimentation phase and that the student was completely free to apply it from her own criteria and that she could adapt it if her research required it. The researchers who write this work play the classic role as a guide for research at a certain level of higher education. At first our work was based on the observation and description of the autonomous evolution of the student. But after a few weeks we decided to pay special attention to the "general and individual" mode of communication and compare it at its three levels: verbal, non-verbal and written. The reason for this decision was based on the evident difference that the students showed when they tried to explain and communicate the progress of their work. This observation of the students provided us with an indicator and we observed how our theory provided them with a more effective solution than we were able to understand at one point. Through the orientation of the works we were able to register evident signs of a proactive attitude of the student, and how he was able to begin to abstractly visualize a problem that weeks before he was unable to face. Thus, we note that the use of the method for the representation of a contextual framework in an applied research, provided them with something more than: a set of circumstances that accompany a problem; o a description of the characteristics of the environment of the study topic; or a virtual setting, conditions and situations that lay the foundations for your research. With all this, we found that it provided them, to a greater or lesser degree, a holistic visualization of a possible non-verbal, verbal or written communication. It is on this specific issue that we as counselors decided to focus our observation to understand the magnitude of what was manifesting itself.

### **3. Results**

Based on the applied tests of this theory and its method, carried out during the 2019-2020 academic year in a selection of students from different levels of higher education, we present the results we have obtained and also other advances that have been shown to us during the orientation process of all the tests carried out. The tests carried out were carried out at the undergraduate, master and doctoral levels with students from Portugal and Spain. The essays began with the explanation to all students equally of the details of the Theory on Creative Chaos, and of the method for the representation of the contextual framework of an applied research.

#### ***3.1 Presentation of practical tests***

Next we present the results of the application of our theory and method in a series of real investigations. Some of these are scheduled to continue in the next course. But first we must explain some decisions that we made at the beginning. When considering these application tests, we decided to carry them out from the perspective of guiding the investigations that are carried out, which can assess the progress of the work carried out. With this we can specify the initial state of prior knowledge of the person who investigates, her achievements through her work, and the final result that she has obtained after applying this theory and method. This has led us to have to delimit 24 samples that contribute their results to this practical test. The people selected to carry out this practical test are divided according to the level of higher education they have taken in the 2019-2020 academic year and the scope of the research that they have planned to develop to exceed the level required of them. The selection was made with students from the disciplines of design and communication of the levels of (EHEA) European Higher Education Area:

- 8 Degree Students "Bachelor", level 6
- 5 Master students, level 7
- 11 PhD Students (1st year), level 8

Once the course was finished, we proposed the same test to all the students, composed of ten questions, so that they would evaluate within a scale of 1 to 5, with 1 being the minimum value and 5 the maximum value.

Questions asked:

1. What was your level of prior knowledge? "before applying the method".
2. Do you understand how the method works?
3. Do you consider that the method is complex?
4. What level of application do you think the method has?
5. How do you rate the level of information obtained?
6. How do you assess the quality of representation of the contextual framework?
7. Do you see the information about the problem?
8. What level of support does it bring to your non-verbal communication?
9. What level of help does it bring you to your verbal communication?
10. What level of help does it bring to your written communication?

### ***3.2 Analysis of the results***

The student has been asked to read each question on the test carefully and to rate her answer on a scale of 1 to 5. Here we express the mean value of each answer. The values differ according to the level of higher study carried out. Then we provide two possible evaluations: student evaluation through the test; and the assessment of the two counselors.

#### ***Question 1. What was your level of prior knowledge? "before applying the method"***

Middle value:

- Degree "Bachelor": 1.4

- Master: 1.8

- Doctorate: 1.8

*Student assessment through the test:* Between a level of 1 to 5, we observe that students are at a low level of knowledge about the method that is presented to them.

*Guiding assessment:* We find that the difference between the three levels is very small.

***Question 2. Do you understand how the method works?***

Middle value:

- Degree "Bachelor": 4.3

- Master: 4.8

- Doctorate: 4.5

*Student assessment through the test:* Between a level of 1 to 5, we observe that the students are at a high level of knowledge about the method that is presented to them.

*Guiding assessment:* We find that the difference between the three levels is very similar. It is possible to differentiate between students who have prior "professional" knowledge and students who do not have experience. We observe that at a very early stage, students who do not have prior knowledge are able to assimilate the explanations presented to them more easily. On the other hand, students with previous knowledge derived from the profession, tend more frequently to question the method presented to them and compare it with their own documentation methods or other methods used.

***Question 3. Do you consider the method to be complex?***

Middle value:

- Degree "Bachelor": 3.0

- Master: 2.3

- Doctorate: 2.0

*Student assessment through the test:* Between a level of 1 to 5, we observe that students are at a medium level of understanding about the method that is presented to them.

*Guiding assessment:* We found that undergraduate students are somewhere in the middle given that the terms used do not yet understand them, compared to master's and doctoral students who are more familiar with the terms used. In the latter we also note that there is an obvious confusion between the different meanings that are

given to a certain term. This problem is clarified when the student places them in a unidirectional sequence and observes the differences of each of these.

**Question 4. What level of application do you think the method has?**

Middle value:

- Degree "Bachelor": 4.4

- Master: 4.5

- Doctorate: 5.0

*Student assessment through the test:* Between a level of 1 to 5, we observe that students are at a high level of applicability of the method presented to them.

*Guiding assessment:* We found that all students, regardless of the level of studies that develop their research, give the method a high applicability at the moment that they are able to visualize the information of the contextual framework that until now remained hidden "A picture is worth a thousand words"

***Question 5. How do you assess the level of information obtained?***

Middle value:

- Degree "Bachelor": 4.4

- Master: 4.5

- Doctorate: 5.0

*Student assessment through the test:* Between a level of 1 to 5, we observe that the students are at a high level of the level of information that the application of this method provides them.

*Guiding assessment:* We found that all students, regardless of the level of studies that develop their research, grant the method a high applicability at the moment that they are able to visualize the information of the contextual framework that until now remained hidden, "An image is worth a thousand words "

***Question 6. How do you assess the quality of representation of the contextual framework?***

Middle value:

- Degree "Bachelor": 4.1

- Master: 4.8

- Doctorate: 5.0

*Student assessment through the test:* Between a level of 1 to 5, we observe that the students are at a high level of the level of information that the application of this method provides them.

*Guiding assessment:* We found that all students, regardless of their level of studies, who develop their research are capable of representing a certain contextual framework, either in a primary way or in a more elaborate way. In all cases it is understood that the visualization corresponds to an active visualization that is remodeled based on the data obtained in the development of the research. In this sense, if we observe a certain contextual framework at the beginning of an investigation, we see how it is remodeled as the investigation progresses and at the end it concludes with a certain representation of the current situation of that moment. For this reason, in this article, we do not show any examples of the practices carried out since they will not serve as a reference for the reader to propose a possible investigation.

***Question 7. Do you see the information about the problem?***

Middle value:

- Degree "Bachelor": 4.1

- Master: 4.8

- Doctorate: 4.5

*Student assessment through the test:* Between a level of 1 to 5, we observe that students are at a high level of the visualization level that the application of this method provides them.

*Guiding assessment:* We found that the ability to view the information on the problem is directly related to the scope of the investigation. In a Bachelor's degree research, it is intended that the student carry out an exploration of a certain subject without generating data. In a master's research, the exploration, description and possible approach of the first trials that provide preliminary results are proposed. In a three-year doctoral research, in the first year the student is required to be able to put forward a research proposal that will last at least three years. For all this, we understand that the visualization should vary depending on the level and scope of the research to be carried out.

***Question 8. What level of help does it bring to your non-verbal communication?***

Middle value:

- Degree "Bachelor": 4.0

- Master: 4.3

- Doctorate: 4.3

*Student assessment through the test:* Between a level of 1 to 5, we observe that the students are at a high level of control of their non-verbal communication.

*Guiding assessment:* We found that the level of non-verbal communication control rises depending on the understanding of the information and data that the student is capable of mastering. This leads us to think that the control of non-verbal communication is directly related to the information that can be known.

***Question 9. What level of help does it bring to your verbal communication?***

Middle value:

- Degree "Bachelor": 4.1

- Master: 4.5

- Doctorate: 4.5

*Student assessment through the test:* Between a level of 1 to 5, we observe that the students are at a high level of control of their verbal communication.

*Guiding assessment:* We find that the more information the person investigating processes, the greater the confidence that is emitted in any personal statement before an explanation, presentation or exposition of the status of the investigation that is carried out verbally and in public.

***Question 10. What level of help does it bring you to your written communication?***

Middle value:

- Degree "Bachelor": 4.1

- Master: 4.5

- Doctorate: 4.8

*Student assessment through the test:* Between a level of 1 to 5, we observe that students are at a high level of control of their written communication.

*Guiding assessment:* We found that the ability to generate the content of the written memory of an investigation is related to the other and non-verbal ways of seeing it. The domain of information guarantees the "what to say" that constitutes the argument of the investigation. Another thing is the "how to say it" which refers to the correct use of the scientific mode and the application of the various citation regulations.

#### 4. Conclusions

Through the observation of the evolution of the practical tests carried out we are able to answer the questions of this work:

*Does the visualization of a contextual framework favor the control of the information of an applied research?*

We observe that when the student is able to organize the information and structure a possible contextual framework of her research, she manifests a proactive attitude and increases the autonomous capacity of her research activity. We are convinced that it is.

*Does controlling information facilitate student communication?*

We observe that when the student is able to control the vast information of her research, her communication level increases and she is able to begin to align her verbal, non-verbal and written communication. Also, to recognize your limitations in this regard and understand how you can improve to evolve. We are convinced that it is.

Through the results obtained in these applied tests and the test carried out at the three levels of higher education we can conclude:

- a) The initial position of the student in relation to the application of the method of representation of a contextual framework is directly related to the previous knowledge "professional experience" that they have. With less experience, the student is positioned more easily since he does not present previous personal barriers that can intercede between what is proposed and what has been learned in a self-taught way or in other disciplines.
- b) The proactive position of the student facilitates the assimilation of the proposed method: in experienced students, creative illumination is produced, helping to understand the context and facilitate a possible representation; in inexperienced students it produces confidence to know the "what to do" and "how to find" the information required for the investigation.
- c) In all the cases tested, the student, without difference between levels, is capable of establishing a certain autonomy of work: in students with professional experience, it gives them the ability to lead the investigation from different perspectives or avatars (professional and academic) ; in inexperienced students it helps them evolve in a graded way through a staggered sequence of inquiry work phases.
- d) With regard to the three modes of communication, we found that the alignment between: what is thought, what is said, what is manifested and what is written through writings, is favored from the assimilation of the information and data from applied research. And that this alignment is more easily configured from the representation of a specific contextual framework as the stage where the relevant information and data is displayed.

And also, how from the perspective of scientific communication, we corroborate that the control of information and data represented in a certain contextual framework enhances a proactive attitude in the student, providing

the guidelines to control their conscious actions and unconscious reactions. In other words, the possibility of aligning the three forms of communication expressed as: what is thought, what is said, what is manifested and what is written through writing. We understand that the mastery of information and data from an investigation favors in the student the possible alignment of the three levels of communication: verbal, non-verbal and written. And that this alignment is more easily configured from the representation of a specific contextual framework as the stage where the relevant information and data is displayed.

## 5. Limitations and restrictions of the study

The main limitation that determines this research is the time of the trials. But we are aware that more than a limitation, it is undoubtedly the main conditioning factor that any research has, so it was essential that it be carried out within an academic year. The restriction of the study is given by the confidentiality of the data of the investigations carried out at the various levels. Our objective goes beyond the mere fact of providing results, it goes in the direction of communicating a new working method that can help many investigations evolve regardless of the level or scope that may arise.

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