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Research skills and difficulties in scientific research Postgraduate from UNHEVAL

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Abstract

The objective of the research was to identify the difficulties in the development of thesis and writing of scientific research articles of graduate students of the Faculty of Education Sciences of the UNHEVAL. The writing of scientific articles are inherent activities of the researcher, an obligation and academic requirement for both undergraduate and graduate students. The method used was the survey submitted to 30 students of the Graduate School of the Faculty of Education of UNHEVAL. The results indicate that a significant percentage of 60% of students have difficulties in writing their scientific research articles. In conclusion, it is possible to affirm that a significant percentage of master's students have difficulties in writing their research and scientific research articles, due to their poor domain of research competencies, which constitutes a limitation for obtaining the academic degree, since the presentation of scientific research articles is mandatory for their subsequent publication in indexed journals.

Keywords: Epistemology, scientific research, digital competencies.

Introduction

The objective of this study is to identify the difficulties in the writing of scientific research articles that graduate students at the Faculty of Education Sciences of UNHEVAL have due to their poor domain of research competencies.

The concern to investigate the poor mastery of research skills and difficulties in writing scientific research articles emerged when, as teachers at the Graduate School of the Faculty of Education of the UNHEVAL during the years 2020 and 2021, the authors observed that master's students had difficulties in writing not only scientific research articles, but also their research projects and the thesis.

Inquiring about research skills and difficulties in writing scientific research articles, important research articles have been published both internationally and nationally. These studies serve as a background for the study, and are mentioned below.

Cardoso and Cerecedo (2018), in their research entitled: Valuation of the Research Competencies of Graduate Students in Administration, point out that the students were valued with insufficient mastery in their research

competencies in their skills and abilities related to the formulation and development of scientific research of Cardoso Graduate Students.

Herrera Acosta (2015), in his research entitled: Research strategies and their influence on the development of scientific research project, Case: students of the Faculty of Political and Administrative Sciences of the National University of Chimborazo, Riobamba, Ecuador, argues that the PEIPIC research strategies program significantly influences the elaboration of the scientific research project in students of the Faculty of Political and Administrative Sciences of the National University of Chimborazo, Riobamba, Ecuador in 2015.

Rodríguez-Menéndez et al. (2016), in their research entitled Frequent problems in the writing of scientific articles, referring that there are difficulties in the writing of scientific articles, explains:

> The study carried out showed that there are deficiencies from the conceptual, methodological and writing point of view that threaten the quality of scientific articles and the consequent publication of scientific results. This implies the need to establish ways to make possible, from undergraduate education, the adequate preparation of future professionals in this area.

Tapia Cortés (2018), in his research entitled: Las competencias investigativas en posgrado (Research Competencies in Postgrade), states:
Training in research competencies in postgraduate programs is a requirement of all disciplines. It is presented as a possibility and a benefit for the generation of knowledge for which it is necessary to count with the accompaniment of a professor. As the main axis in the research process, the experience of the professor is necessary for the acquisition of research competencies.

Sabaj (2009,) in his research entitled: Discovering some problems in writing Scientific Research Articles (SRA) argues:
Nowadays, the dissemination of science in the form of Scientific Research Articles (SRA) in indexed journals is no longer an option and has become a necessity for those who start or practice research. Despite this, the training of researchers in Chile is recent and those who undertake postgraduate studies rarely receive formal instruction.

Theoretical and epistemological basis

The difficulties faced by undergraduate and graduate students are due to the fact that they have a low or scarce investigative domain, that is to say, they have a low level of investigative competencies.

What are research domains?

The research domains are a set of duly organized and systematized knowledge that a researcher who wishes to venture into the field of research and therefore in the planning of a scientific investigation must be aware of.

The research domain can also be defined as the management of theories on the conduct of scientific research.

The word dominion is of Latin origin “dominium” which means to have necessary and appropriate knowledge of things. Dominion is the knowledge or handling that an individual has of a subject, science, art, matter or a problem of an investigative situation, for example, one hears it said, he or she dominates this or that subject.

The PUC, when referring to academic domains and lines of research, explains that academic domains are a way of organizing knowledge that enables the articulation of institutional strategic planning with prospective research.

Pulido (2017) explains that the results of his research indicate that most of the postgraduate applicants have little mastery of the skills to develop the sections of the research project. So, it

is recommended to carry out, in each course or subject, discussions between students and researchers to share experiences related to research competence.

From this point of view, in order to develop a scientific research, it is necessary and indispensable to have theoretical and practical mastery of essential aspects such as research competence.

From the epistemological point of view, research competencies are made up of epistemological, gnoseological, methodological, communicative and digital competencies.

A researcher must have a theoretical and practical mastery of the research process, for example, he/she must have a theoretical mastery or theoretical background, about research stages, about scientific method and other inherent aspects that are related to the scientific research process.

Importance of the theoretical domain

The theoretical mastery of epistemological, gnoseological and methodological aspects of scientific research is important and essential in research work. There can be no practice without theory, i.e., science cannot be done, consequently scientific research cannot be done without a theoretical or epistemological basis.

Borja Fierrera et al., in their research entitled: The technical, scientific and humanistic domains of the Technical University of Machala (UTMACH), when referring to the research domains, explains:

> The domains constitute the guiding category in research work, including the training of the professional. These domains, and their lines of research, define the direction to be followed in the scientific research work.

From this point of view, the domain can be defined as a system of knowledge, a set of abilities or skills that students should have on the process of scientific research and writing scientific research articles.

Research competencies

Competencies are a set of significant capacities, abilities, skills and knowledge that undergraduate and graduate students, both in public and private universities, must develop in order to write not only their scientific research articles, but also to write their research projects or thesis projects.

Research competencies refer to a set of knowledge, skills and abilities that the researcher must have to solve the problems that arise in the research process, both in the formulation of the Thesis Project or in the writing of the body of the thesis and scientific research articles.

Villarroel and Rosmery, in their research entitled: Competencias investigativas, explains: Research competencies imply the knowledge and development of skills, which translates into having the capacity and willingness to perform research activities and skills.

The author citing Catalano and Sladogna when referring to investigative competence, explains:

> Competence is the ability to mobilize knowledge and techniques and to reflect on action. It is also the capacity to construct reference schemes of action or models of action that facilitate diagnostic actions or the resolution of unforeseen or non-prescribed productive problems.

From this point of view, it can be said that research competencies refer to a set of knowledge, skills, abilities and capacities that undergraduate and graduate students must have in order to successfully develop their respective scientific research.

According to García-Gutiérrez (2019), research competencies are characterized by being transferable, flexible, creative, transversal, multifunctional and complex, in addition to having a holistic, dynamic, evolutionary and ethical character, in this regard he explains:

> Competencies are developed in a contextualized way as it incorporates external demands, along with their

personal attributes. Competency-based training involves the development of attitudinal, practical and theoretical knowledge related to a specific professional profile".

Rivas Tovar (2011), in his research entitled: The nine competencies of a researcher when referring to the definition of competence, says:

> Competence is also synonymous with capacity, attribute, ability or skill. All these concepts are related to the person and what he or she is capable of achieving".

From this point of view, it is possible to affirm that research competencies refer to a set of capacities, abilities, skills and aptitudes that researchers must possess when carrying out scientific research.

Types of research competencies

In this sense, there are five research competencies that the researcher must have theoretical and practical mastery of:

1. Epistemological competencies
2. Gnoseological competencies
3. Methodological competencies and
4. Communication skills.
5. Digital competencies

These research competencies have implications in the research task, so the researcher must have a practical theoretical mastery of these research competencies.

Next, for didactic purposes, 5 research competencies are classified, which are shown in Figure 1.

The lack of mastery of these significant skills or competencies leads to difficulties in the development of the process of scientific research and writing scientific research articles.

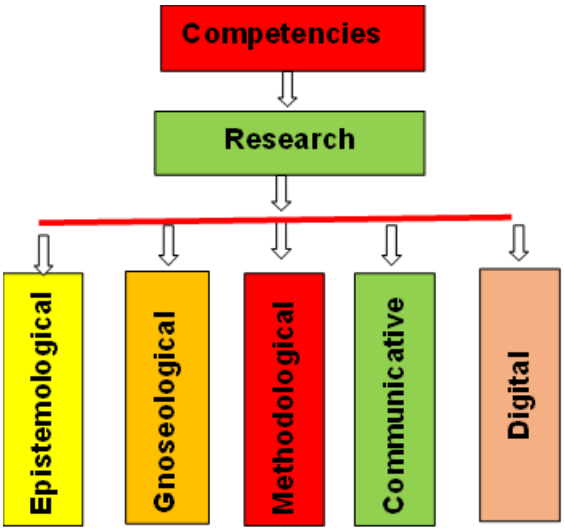


Figure 1. Types of Research Competencies.

1. Epistemological competencies

Epistemological competence refers to the set of theories that an undergraduate and graduate student must master when writing research projects, into the body of the thesis and for publishing scientific research articles.

A researcher must have theoretical knowledge about science, structure, characteristics and functions of science and have mastery over the scientific method.

Aldana Zavala (2019), in his research entitled: Epistemological competence in the Venezuelan university social researcher, states that epistemological competencies are based on philosophical questioning, explaining that:

> Epistemological competence is based on philosophical questioning. In this sense, it is necessary that researchers philosophize about reality in their contexts and ask themselves how to improve it from an investigative process. This will allow them to configure themselves as research beings of the social changes proposed by the multiple realities, and they will be able to know, from epistemology, how to do research according to the mental-real parameters in which they develop.

Epistemology and scientific knowledge

Epistemology is a scientific philosophical discipline that deals with the problems of scientific knowledge.

Epistemology is the theory of the theory; it is the meta-theory that also deals with the problems of scientific research.

Epistemological competencies, which are a set of theoretical abilities or skills, are based on epistemology or philosophy of science.

What is epistemology?

The word epistemology is etymologically derived from two Greek words:

Episteme which means true knowledge: Epistemology, from Greek ἐπιστήμη epistḗmē meaning knowledge logos from Greek λόγος equals lógos, study. It is interpreted as study, theory.

In summary, epistemology is a philosophical discipline that deals with the study of the true knowledge that arises as a product or result of a scientific investigation.

From this point of view, epistemology, as a philosophical discipline deals with the study of scientific knowledge, provides theory to science, scientific knowledge and scientific research.

Bunge (2000), in his book entitled: "Epistemology", referring to epistemology, also called philosophy of science, explains that science is today the object of study of several disciplines, whose union constitutes the science of sciences. They are epistemology or philosophy of science.

Referring to the concept of epistemology, he explains:

> Epistemology, or philosophy of science, is the branch of philosophy that studies scientific research and its product, scientific knowledge. A mere leaf on the tree of philosophy a century ago, epistemology is today an important branch of it.

From this point of view, epistemology deals with the study of scientific research and scientific knowledge as its product.

2. Methodological competencies

Methodological competencies refer to the mastery of the set of methods, techniques and sequential procedures that undergraduate and graduate students must have to write their research projects, write the body of the thesis and also the scientific research articles.

Those who aspire to become researchers must have methodological mastery, that is, they must have knowledge of the methodological guidelines required to carry out scientific research. So, novice researchers must have methodological mastery to conduct research.

Methodological competencies constitute a set of abilities, skills and a set of theoretical and practical knowledge on methodological management that those who enter the field of scientific research should have. In other words, it is the methodological mastery required to develop specific scientific research.

Every intellectual who is involved in or ventures into the field of scientific research must have theoretical, epistemological and practical mastery in the use or employment of research methods, techniques and instruments.

Methodological competencies are related to a set of abilities, skills and knowledge about the methodological domain to develop scientific research, they refer to the use and application of certain methods, techniques and instruments that should be known by undergraduate and graduate students of public and private universities who carry out scientific research or thesis.

Methodological competencies can be defined as the set of abilities, skills and knowledge about the theoretical and practical domain to use a set of methods, techniques and instruments in the development of a scientific research.

It can be affirmed that without an adequate and relevant method, scientific research cannot be developed.

Scientific research is the orderly, methodical and sequential process of inquiring, investigating or seeking information for new knowledge.

Scientific research is a process of searching for valid information to solve various problems, for which it is necessary to use the appropriate scientific method.

In the research process, it will not be possible to collect information without an adequate method. It is not possible to obtain valid information without the proper use of a certain research method.

Tamara Otzen et al. (2017), in their research entitled: The *need to apply the scientific method in clinical research: problems, benefits and feasibility of developing research protocols*, when referring to the importance of methodological mastery, explains:

> The methodology of scientific research is a set of methods, laws and procedures that guide research efforts towards the solution of scientific problems with maximum efficiency. The method is based on the development of different stages that lead to the establishment of a valid conclusion based on the verification of a hypothesis and assumptions of the research carried out (p.25)

Asensi-Artiga, V. and Parra-Pujante, A. (2002) in their article entitled: The scientific method and the new philosophy of science, when referring to the scientific method, point out:

> The scientific method and the power of reason allow us to continue advancing in the search for truth and the creation of models to increase the scientific knowledge of the world.

What is methodology?

Methodology can be defined as the theory or explanation of the method.

Methodology, the theory of method, is the explanation of method from a theoretical point of view. Within the philosophy of science, method constitutes a scientific discipline that deals with the study of the problem of method.

According to the materialist theory of knowledge, all knowledge arises from objective reality and knowledge arises from social praxis. To achieve such knowledge, it is necessary to use a certain method. Without method there is no new scientific knowledge, consequently "there is no theory without practice, nor practice without theory", nor knowledge without method.

Francisco Miro Quesada (1959), an outstanding Peruvian philosopher and university teacher from San Marino, in his book entitled: *Hombre sin Teoría* (Man without Theory), emphasizes the importance of theory, asserting that no man can live without theory, therefore, every man has a theory, he explains:

> Man is a theoretical animal par excellence. That is why the wisdom of the ancients called him a rational animal, because theories are made with reason" (p.27)

From this point of view, theory is important and especially in scientific research that allows the development and emergence of a new true knowledge or scientific knowledge, and the theories that support the foundation of the method is the methodology.

Granada in his book entitled: The theory: its structure and importance in scientific research, explains that the methodology is the study or theory of the method, in this regard he explains:

> We can understand methodology, in general, as the study (theory) of the method**.** And this can be defined as a systematic (and/or structured) procedure for dealing with a set of problems, from their formulation to the evaluation of the proposed and/or verified solutions (p.18)

Likewise, the author maintains that every researcher must create theories, enrich and increase them, to which he writes:

> The role of the scientist (and of science) is to build theories through research, while being able to build more complex theories, deep and fruitful (p.54)

Morales, in his article entitled: *Sobre la metodología como ciencia y el método científico: un espacio polémico* (On methodology as science and the scientific method: a polemic space) explains about methodology and maintains that it is the science of method:

> Methodology is a science with a well-defined object, rules and structure. As regards its structure, it is proposed that it is composed of five levels: approaches (ideological level), strategies (organizational level), modes of production (typological level), methods (logical level) and techniques (or operational level).

The author adds: "Methodology is the *science of methods*, i.e., it is the critical study of the set of rational and systematic operations and procedures used by human beings to find optimal solutions to complex theoretical or practical problems. In this sense, and according to the objects of study, there are numerous methodologies of scientific research.

Coinciding with the aforementioned authors, we can define methodology as a science whose object of study is the problem of method, it is responsible for providing it with a theory and a theoretical explanation of the procedures, steps and processes that are intrinsically linked and related to scientific research.

According to Bunge, methodology is normative insofar as it shows which are the procedural rules that can increase the probability that the work will be fruitful. But the rules discernible in successful scientific practice are perfectible, and they are not untouchable canons.

For Habermas (1996), methodology deals with the rules of the research process, which claim a logical validity in relation to the field on which the science deals and simultaneously a factual binding for researchers. In this regard, he argues:

> The establishment of a methodology thus alludes to the design of the research through the establishment of the most appropriate methods and techniques that allow, fundamentally, the collection, processing and analysis of data and information that allows the empirical testing of the variables contained in the initial hypothesis proposed. (p.125)

According to Jiménez (1998), the methodology constitutes a set of methods, laws and procedures. In this regard, he explains:

> The methodology of scientific research constitutes a set of methods, laws and procedures that guide research efforts towards the solution of scientific problems with maximum efficiency. It is, therefore, the application of the scientific method in the solution of knowledge problems".

Morales (2002), in his research entitled *La metodología como ciencia y el método científico: un espacio polémico* (Methodology as science and the scientific method: a polemical space), explains about the concept of methodology in the following words:

> The concept of methodology is also closely linked to that of *technique*, since both activities are aimed at the same objective: to solve problems rationally. But Methodology refers to the *how*, that is, to the definition, or description of the formal steps and means to achieve it, while the purpose of Technique is to *find* or create the real, objective, concrete and optimal solution".

Otzen et al. (2017), when referring to the need to apply a scientific method in a scientific investigation, points out:

> The methodology of scientific research constitutes a set of methods, laws and procedures that guide research efforts

> towards the solution of scientific problems with maximum efficiency.

Fabian Cohello explains that methodology is the series of methods and techniques of scientific rigor that are systematically applied during a research process to reach a theoretically valid result. He affirms that methodology functions as the conceptual support in the application of the procedures in research.

Gnoseological competencies

Gnoseological competencies refer to the fact that every researcher must have mastery over theories of knowledge, since gnoseology deals with the study of the problems of knowledge.

Gnoseology, also called theory of knowledge, is a philosophical discipline that deals with the problems of knowledge.

Hessen (1925), in his book called *Theory of knowledge*, explains about the theory of knowledge, explaining that the theory of knowledge is, as its name indicates, a theory, that is a philosophical explanation and interpretation of human knowledge.

The man of science or the researcher must have theoretical mastery over various aspects of knowledge, and such theoretical knowledge is an intellectual capacity to know how to distinguish, for example, about elements of knowledge, sources, essence, classes and levels of knowledge.

Research and the causality principle

Every researcher must keep in mind that every effect has a cause and every cause generates an effect or consequence.

In a scientific investigation a problem is identified to investigate and provide a solution, therefore, the cause and effect must be known.

Hessen, referring to the principle of causality, explains:

> The principle of causality means the affirmation that every change, every process has a cause; this is the content of the principle of causality. Philosophers who consider the principle of causality usually formulate it as follows: "Every effect has a cause. It is not possible to think the concept of effect without thinking at the same time that of cause (p.22).

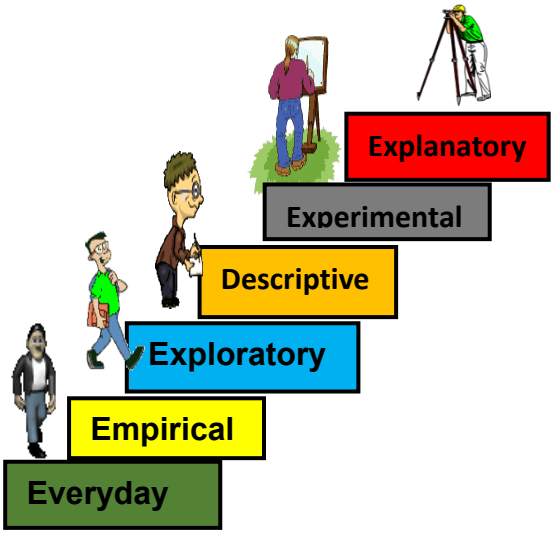
From this point of view, in an investigation, a problem is identified, delimited and demarcated and every problem has a cause and an effect and every effect has a cause, which constitutes the causality principle of a scientific investigation.

Knowledge levels

Epistemology, or philosophy of science, is what helps understand that knowledge evolves along with human evolution.

Knowledge evolves from lower to higher levels through a long evolutionary development, which is studied by the philosophy of science and the history of science.

The different levels of knowledge developed in the history of mankind and the development of science show the following levels of knowledge: everyday, empirical, exploratory, descriptive, descriptive, experimental and explanatory or philosophical knowledge.

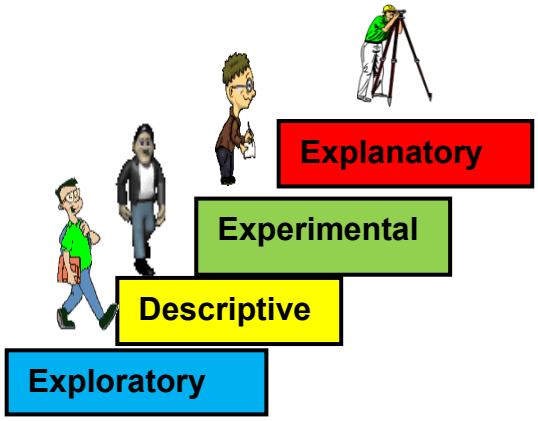


González Sánchez (2014), in his article entitled *The levels of knowledge* when referring to the levels of knowledge explains that the levels of knowledge derive from the advance in the production of knowledge and represent an increase in the complexity with which it is explained or understood.

Levels of scientific research

Scientific knowledge and scientific research have four levels. These levels are: Exploratory level, Descriptive level, Experimental Level, and Explanatory level .

Levels of scientific research



Communication skills

Communicative competencies refer to the mastery of an adequate methodology to communicate the results of a research.

Communicative competencies are a set of communicative skills, abilities and knowledge that a researcher must develop.

The communicative competences are present in the whole process of the research, and in the process of writing the parts of the research. So, they are present at the time of writing the body of the research.

According to Hymes, (1996) and Galvañy (2011), communicative competence is the ability of the individual to communicate, depending on the communicative situation, and the role that corresponds to him/her in the communicative act and the purpose that is proposed. To do so, the individual must use his/her linguistic, cultural and social knowledge and apply his/her psychological and strategic preparation to make a correct selection of the appropriate communicative function for the situation and the topic in question.

From this point of view, the communicative capacity refers to the set of skills, abilities, strategies and practical theoretical knowledge that the researcher must have mastered in order to adequately write and communicate the results of a research project.

Asensi-Artiga and Parra-Pujant (2002), when referring to the communicative competence or communicative domain of a researcher explain:

> Communication is the culmination of the research work, for it to be done properly and, therefore, to express the content of a research work faithfully, it must be the result of a correct writing of the content. The writing techniques, for its writing using the appropriate rules of syntax and style, as well as the application of the rules of communication, are a prerequisite for the achievement of the researcher's objectives.

For Hymes (1996) and Galvañy (2011), communicative competence is the ability of the individual to communicate, depending on the communicative situation, the role that corresponds to him/her in the communicative act and the purpose that is proposed. To do so, he/she must use his/her linguistic, cultural and social knowledge and apply his/her psychological and strategic preparation to perform an appropriate communicative function.

Henríquez Fierro and Zepeda González (2004) in their article entitled *Elaboration of a scientific research article*, state that the final stage of the research is to communicate the results and publish them in a scientific journal.

> The final stage of a research is to communicate the results, so that they allow the integration of knowledge to professional practice, that is, it is based on the findings of scientific studies that must have validity, importance, novelty and usefulness that are made in publications in prestigious journals, publishing in it is a sign of validity or that if the author managed to publish his research work and its results are presented in scientific articles.

From this point of view, communicative competence in the context of scientific research refers to the abilities, skills and knowledge that the researcher must put into practice in the process of writing the body of the research.

The researcher's communicative competence is related to the writing of the research report and the process of writing the scientific research article.

The researcher must keep in mind that the research ends not only with the research report or substantiation of the research, but must also keep in mind that, nowadays, in the era of knowledge, all research ends with the publication of a scientific article in an indexed journal.

According to Henríquez Fierro and Zepeda González (2004), communication is the final stage of research similar to the initial stage in the degree of difficulty involved. To interpret and communicate the results of a study requires experience, knowledge of statistics and analytical skills to make pertinent comments relating it to other findings of similar research.

Villagrán and Harris (2009), in the article entitled *Some keys to correctly write a scientific article*, points out that human beings have had the need to communicate their thoughts for millennia and with greater reason modern science must communicate its results in scientific journals, to which he writes:

> Human beings have been able to communicate their thinking for millennia. Scientific communication, as we know it today, is relatively new. The first scientific journals were published only 300 years ago, in 1665 the Journal des Sçavans in France and the Philosophical transactions of the Royal Society of London in England.

Indeed, in recent years, the number of journals publishing interesting scientific articles in various areas of human knowledge has increased.

Digital skills

Approximately for more than 10 years, the population have been living in a different era, without realizing it, they have been immersed and interacting in a new age, which is called: Digital Era.

In this new time period, called the digital era, great dizzying changes are taking place, mainly digital communication, which implies the emergence of digital intelligence, therefore, the need to develop digital competencies arises.

In the digital era, the educational system is also digitized, virtualized, and consequently, the development of knowledge and scientific research is digitized, generating the need to develop digital intelligence, competencies and digital skills to successfully face this new context in which we live.

Digital competence and research

In the digital era of the virtualized scenario of education, it is necessary to develop digital competencies not only in the teaching-learning process, but also in the development of scientific research.

Olvera (2015), in his article entitled *Digital competencies in graduate students in education*, when referring to digital competence, points out the following:

> Digital competence is the ability of individuals to adequately use digital tools to identify, access, manage, integrate,

> integrate, evaluate, analyze and synthesize digital resources to build new knowledge.

Cantabrana (2016), in his article entitled *The digital competence of future teachers: how do current education students see themselves*, explains that in the current era, in the context of the digital age and the knowledge society, it becomes necessary the development of digital skills of students to be functional and coexist in the Knowledge Society, to the potential benefits that these pose associated with teaching and learning processes, and explains:

> Digital competence is not only the possession of skills, knowledge and attitudes, but also the ability to put them into action, mobilize, combine and transfer them, in order to act consciously. A teacher who is digitally competent should have the skills, attitudes and knowledge required to promote true learning in a context enriched by technology.

From this point of view, not only graduate students, but also undergraduate students, should have digital competencies, and even basic education students should have mastered digital competencies.

In this new era, digital intelligence must be developed; therefore, digital competences must be developed, even more so graduate students must cultivate digital intelligence and digital competence, along with the study of neuroscience and the new information technologies.

Pascual et al. (2019), in his article entitled *Digital Competencies in the Students of the Degree of Primary Education Teacher*, the case of three Spanish Universities, argues that the mastery of digital competencies should be incorporated into teaching at all levels of education, as it is extremely important, and explains:

> Digital competence should be an interdisciplinary prerequisite for students of all ages to fully benefit from the new possibilities offered by technology for more effective, motivating and inclusive learning, since digital competence is that which involves the creative, critical and safe use of ICT.

Scientific research process

Scientific research is a dynamic, sequential and rigorous process comprising several stages.

What is scientific research?

Scientific research is understood as the process of inquiry, investigation of reliable and true information about some fact, process or phenomenon to know in detail the causes and consequences of a particular problem being investigated.

Research is the search for information about a problem people are interested in knowing or discovering in order to solve a problem for the benefit of the human being and society.

Research is also a process of inquiry and investigation of data or information about some fact or phenomenon that people are interested in knowing and learning about.

Corona Lisboa (2016), in his article entitled *Scientific research. By way of reflection*, explains:

> Research is a methodological process in which a problem of interest to the researcher is exhaustively investigated, whether under a qualitative, quantitative or socio-critical approach, with the aim of solving the problem in the scientific, humanistic and technological fields (p.32).

From the epistemological point of view, a scientific investigation consists of finding out and investigating the truth about some problem that occurs in an objective reality, which may be a certain social, natural or cultural context.

Scientific research is an orderly and methodical process of searching, inquiry or investigation of valid or true information about a problem in order to solve it.

Scientific research uses a set of methods, procedures, tools and instruments of investigation, without which it is almost impossible to obtain valid, accurate or true information about a problem that people want to know in greater detail.

Research is an intellectual process aimed at discovering new true knowledge, which is developed on the basis of an investigative scheme or structure called the scientific method.

The word *investigation* (research), according to Raúl Pino Cotuzzo, comes from the Latin in (en) and the word investigare which means to find, to inquire, to find out.

According to José Yuni, scientific research is a specific way of planning and solving problems of knowledge about reality.

Scientific research is the process of knowledge of the objective reality that surrounds the human being with the purpose of describing, analyzing, reflecting, explaining, synthesizing and proposing alternative solutions to a problem.

Scientific research in the university context is developed in compliance with certain methodological guidelines that each university establishes to determine the methodological criteria in order to guide the procedure to be followed by students who begin the research process to achieve their degree and graduation.

In order to carry out research in university environments, they have to comply with the elaboration of a Thesis Project (dissertation) and then convert it to a thesis.

The novice researchers have difficulties in the formulation of their dissertation and in the writing of its body due to a poor command of research skills that has not been sufficiently provided in the courses of Methodology of scientific research that is developed in the Universities.

Difficulties in research development

The main difficulties in both undergraduate and graduate courses, among others, are as follows.

1. Difficulties in the identification, delimitation or demarcation of the research problem.
2. Difficulties in writing the title of the research.
3. Difficulties in the formulation of the problem, objectives and hypotheses.
4. Difficulties in writing background and theoretical framework of the research.
5. Difficulties in writing the scientific paper.

Scientific research process

Scientific research is a sequential, orderly, rigorous and methodical process in the Research Scheme that is formalized and approved by the Degree and Title Regulations.

According to these regulations, the research process in both undergraduate and graduate programs is developed in two stages or moments.

The thesis project stage

At this stage, the undergraduate and graduate student aspiring to achieve a degree or professional title must prepare a research project or thesis.

At UNHEVAL, the student who starts research for degree purposes must have a thesis advisor.

With the accompaniment or monitoring of a faculty advisor, the student must first develop the thesis project.

What is a thesis project?

The thesis project is the management or planning of the research that, following a methodological guideline based on an outline or protocol, elaborates the logical sequence of the research.

For the elaboration of the Project, it must follow a methodological sequence called scientific method.

The research project or Thesis contains several aspects or parts that the researcher must fulfill sequentially with a rigorous writing of each part.

The research project, also called thesis project or dissertation, is a plan that is elaborated prior to the realization of a research that consists of presenting in a methodical and orderly way following an organized structure with a rational logical sequence.

The research project contains a set of informative data about a problem under investigation.

In this sense, the research project is a previous evaluation of the problem, its scope and importance, as well as the resources that will be necessary for the development of the research work.

The research projects are carried out based on a scientific methodology, which gives them rigor and validity.

What is a dissertation?

The *thesis* or *dissertation* is an academic document that contains the results of a scientific research, which must be supported in a public act in the presence of qualifying jurors appointed by Resolution by the University authority.

Cubillas Romero et al. (2016), in their book entitled *Thesis and research work manual*, defines the thesis or dissertation as follows:

The dissertation (thesis) is an academic document whose purpose is focused on contributing to knowledge and/or providing innovative solutions to specific problems in a particular scientific discipline, which translates into an original research work that follows a methodological rigor.

After having submitted the thesis, the presentation of the scientific research paper is mandatory.

What is a scientific research paper?

The scientific paper is a written text that, following a methodological, schematic and sequential guideline, synthesizes the new knowledge that has emerged as a product or result of scientific research.

Lam Díaz (2016), in his article entitled *The writing of a scientific paper*, explains that scientific research and the publication of the scientific paper are two closely related activities. He points out that scientific research ends with the publication of the scientific paper; only then will it become part of scientific knowledge.

Sánchez Upegui (2016), in his book entitled *the scientific article genre: Writing and analysis from academic literacy and functional rhetoric*, explains that scientific papers should disseminate new knowledge, and explains:

> Researchers should report original results in their scientific articles, i.e., new knowledge: something not yet said or exposed from a novel and/or relevant perspective (contribution). This information should be presented in a structured way and in accordance with the conventions of the genre.

Scientific papers must be published in specialized and indexed journals.

In the writing of a scientific research article, difficulties arise due to a poor command of research skills, which is why their aspirations to obtain their professional degree are truncated.

Currently, the presentation of scientific research papers is an obligation and not optional to obtain a professional degree.

Sánchez Upegui (2016), referring that there are difficulties in writing scientific articles, explains:

> In the process of writing scientific articles, there are linguistic difficulties (textual, lexical-grammatical, discursive and intertextual) in the structuring of the different sections of the research article, which leads to poor scientific communication.

Method

The method used was the survey that was applied to students of the Graduate School of the Faculty

of Education of the National University "Hermilio Valdizán" of Huánuco in the academic year 2021. A standardized questionnaire validated by the judgment of experts formed by 5 doctors in Education was used as an instrument to collect information.

Population and sample

The study population and sample consisted of the students of the Graduate School of the Master's Degree in Research and Higher Education.

POPULATION	SAMPLE
90%	30%

Source: Student enrollment register of the Graduate School of the Faculty of Education Sciences of UNHEVAL, 2021.

To determine the study units, non-probabilistic sampling without norms or circumstantial sampling was used, because as a researcher the study units were voluntarily chosen by mapping system.

Sánchez Carlessi (1998) explains that the non-probabilistic sampling method accommodates the convenience of the researcher. In this regard, he explains that non-probabilistic sampling is when the elements of the sample are taken in any way, generally for reasons of convenience or circumstances.

Results:

The results presented contain tables and graphs for each variable. For the independent variable: Investigative competencies, a single table and its respective bar graph is presented, it represents the summary resulting from the sum of 10 items.

For the dependent variable: difficulties in the scientific research process, 3 statistical tables and their respective bar graphs are presented.

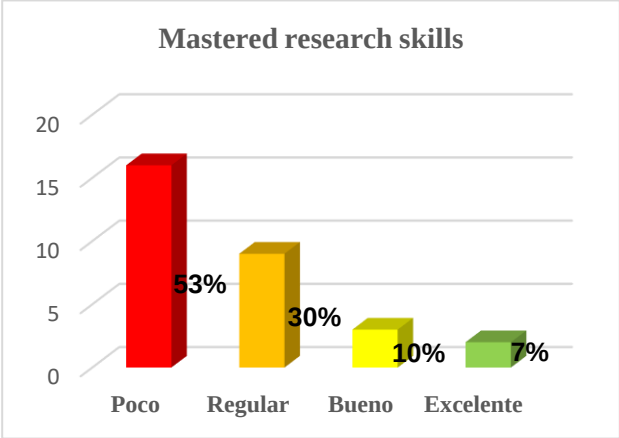
Outcome 1:

Next, results of the independent variable are presented: Investigative competencies.

Table 01
Mastery of research competencies

Little		regular		Good		Excellent		TOTAL	
Fi	%	Fi	%	fi	%	fi	%	Fi	%
16	53	9	30	3	10	2	7	30	100%

Figure 1



Analysis and interpretation

In Table 1 and Figure 1, which refers to the independent variable on research competencies, the following can be observed:

53% of respondents representing 16 students responded that they have *little* mastery of research competencies.

30% of the respondents, representing master's degree holders, responded that they have a *regular* mastery of research competencies.

10% of respondents, representing 3 graduate students, responded that they have a *regular* mastery of research competencies.

Finally, 7% of respondents, representing 2 master's students, responded that they have *excellent* mastery of research competencies.

Outcome 2:

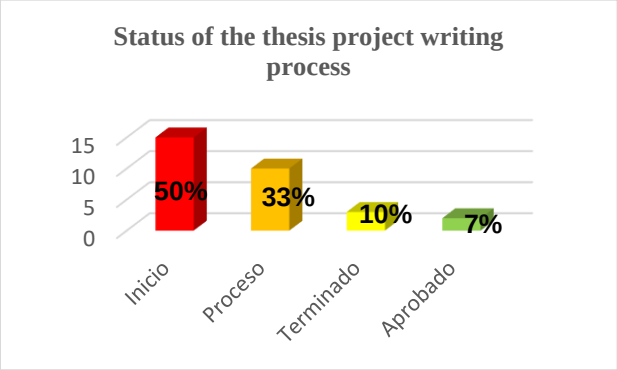
Result 2 represents the results of the dependent variable: Difficulties in the scientific research process**:**

Table 2

Status of the postgraduate thesis project writing, UNHEVAL 2021.

Home		Process		Finished		Approved		TOTAL	
Fi	%	Fi	%	fi	%	fi	%	Fi	%
15	50	10	33	3	10	2	7	30	100%

Figure 02



Analysis and interpretation

In the Table 2 and Figure 2, it is observed that, on the question: What is the situation in which the writing of the Research Project is? the respondents answered as follows:

50% of respondents, representing 15 graduate students, responded that the writing of their research project is at the *start* stage.

33% of respondents, representing 10 students, answered that the status of their thesis project is in the writing *process*.

10% of respondents, representing 3 masters, answered that the status of the writing of their thesis project is *completed***.**

Home		Process		Finished		Published		TOTAL	
Fi	%	Fi	%	fi	%	fi	%	Fi	%
23	77	5	17	2	6	0	0	30	100%

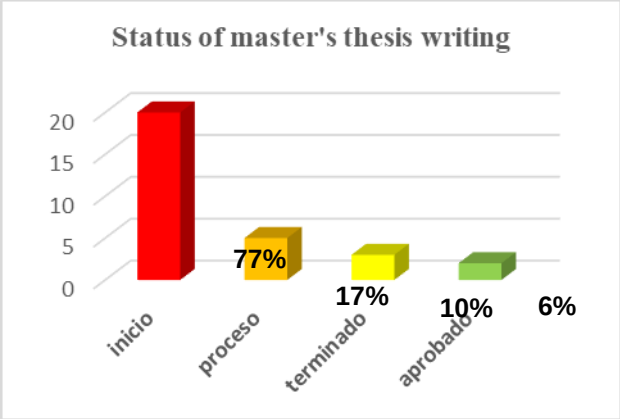
Finally, 7% of respondents, representing 2 graduate students, responded that the status of their research is *approved***.**

Table 3

Status of Master's thesis writing.

Home		Process		Finished		Approved		TOTAL	
Fi	%	Fi	%	fi	%	fi	%	Fi	%
20	67	5	17	3	10	2	6	30	100%

Figure 3



Analysis and interpretation

In Table 3 and Figure 3, regarding the question: Status of the writing of your Master's thesis, respondents answered as follows:

67% of respondents, representing 20 graduate students, responded that the writing of their research project is at *start***.**

17% of students, representing 5 students, responded that the status of their thesis project is in the writing *process***.**

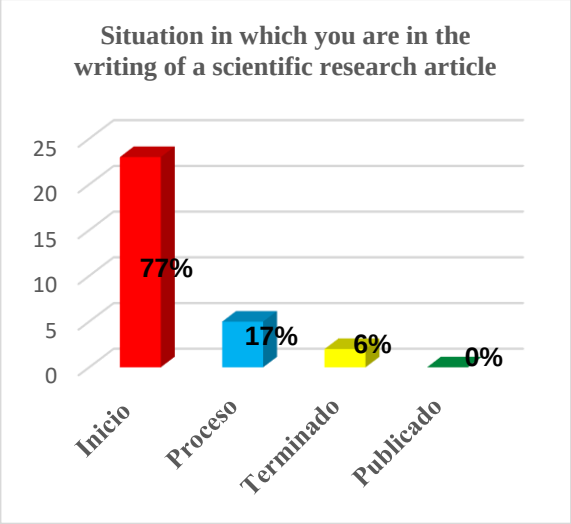
10% of respondents representing 3 graduate students responded that the status of their thesis project writing is *completed***.**

Finally, 6% of respondents, representing 2 students, responded that their research is *completed*.

Table 4

Status of the writing of scientific research articles.

Figure 4



Analysis and interaction

In Table 4 and Figure 4, on the question: Status of writing scientific research articles, the respondents answered as follows:

On the question: Status of the writing of scientific research papers? 77 respondents, representing 23 master's degree holders, answered that it is at the *start* stage:

On the question: Status of the writing of scientific research papers? 17 respondents, representing 5 students, answered that they are in the writing *process*.

On the question: Status of the writing of scientific research papers? 7% of respondents, representing 2 students, answered that it is in the stage of *finished*.

Finally, 0% of respondents representing no students, on the question: Status of writing scientific research paper? They answered that they HAVE NOT PUBLISHED their scientific research paper yet.

DISCUSSION OF RESULTS

From the epistemological point of view, in the process of scientific research, the mastery of research competencies is important, since they refer to the theoretical, epistemological, gnoseological, methodological, communicational and digital domains that a scientist or researcher in any area of knowledge must have.

Miro Quesada (1959), in his book titled *Man without theory*, emphasizes the importance of theory.

He maintains that man cannot live without theory, consequently, every man has theory, produces theory, in respect of which he explains: Man is a theoretical animal par excellence. That is why the wisdom of the ancients called him a rational animal, because theories are made with reason" (p.27)

From this point of view, a man of science and a researcher must have mastery of epistemological, gnoseological, methodological, communicative and digital theories.

The man of science creates theories as a contribution to the growth of science, consequently, the researcher must create theories as part of his contribution to the field of scientific knowledge.

Rivas Tovar (2015), in hs article entitled *9 competencies of a researcher*, argues that they are essential in the training of master's and doctoral graduate students and should actually encourage the training of all university students, science teachers and doctors to develop research competencies, a point of view that is not shared by the authors when he says that there are nine competencies, interpreting that he confuses research dimensions with research competencies.

In the present research, graduate students have *little* mastery of research competencies, representing 53%.

30% of students have a *regular* mastery of research competencies.

10% of students have a good command of research competencies.

Finally, a minimal percentage representing 6% of students have an *excellent* command of research competencies.

From this point of view, it is possible to affirm that due to the poor domain of epistemological, gnoseological, methodological, methodological, communicative and digital research competences, graduate students of the Faculty of Education of UNHEVAL have difficulties to elaborate their research, write their dissertation and scientific research papers.

CONCLUSIONS

1. There is a relationship between the mastery of research competencies with the difficulties of scientific research in students of the Graduate School of the Faculty of Education of the UNHEVAL.
2. There is a low level of mastery of research competencies, epistemological, gnoseological and methodological, communicative and digital competencies among the students of the Graduate School in the Faculty of Education of UNHEVAL, representing 53% of students who responded that they have *little* mastery of research competencies.
3. There are significant difficulties in the writing of Research Project, dissertation writing and writing of scientific research papers in Graduate School students of the Faculty of Education of UNHEVAL due to the poor domain of research competences, i.e., they have little epistemological, gnoseological, methodological and little domain of communicative and digital competences.

References

[1] Aguilera Hintelholher, R.M. (2011) Identidad **y** diferenciación entre Método y Metodología

[2] Aldana Zavala, J.J. (2019) en su investigación titulada: La competencia epistemológica en el investigador social universitario venezolano, afirma que las competencias epistemológicas se sustentan en el cuestionamiento filosófico

[3] Asensi-Artiga, V. y Parra-Pujante, A. (2002) El método científico y la nueva filosofía de la ciencia. Anales de documentación, n.º 5, págs. 9-19, Universidad de Murcia.

[4] Barbón-Pérez, O. G. (2017) Algunos problemas de docentes universitarios en la elaboración de artículos científicos. San José, Rev. Actual. Investig. Educ vol.17 nº.1 Jan /Apr.

[5] Buendía-Arias, X. P., Zambrano-Castillo, L. C., Alirio Insuasty, E. (2018) El desarrollo de competencias investigativas de los docentes en formación en el contexto de la práctica pedagógica. Rev. FOLIOS, Segunda época Nº 47 Primer semestre de 2018 pp. 179-14 pp. 179-195.

[6] Borja Fierrera, A. Quezada, C. Francisco García Reina, F. Fuentes, C., en su investigación titulada: Los dominios técnicos, científicos y humanistas de la Universidad Técnica de Machala (UTMACH),

[7] Bunge, M. (2000) en su libro que lleva por título: Epistemología, al referirse a la epistemología llamado también filosofía de la ciencia, explica:

[8] Cardoso, E. O. y Cerecedo, M. T. (2018) Valoración de las Competencias Investigativas de los Estudiantes de Posgrado en Administración,

[9] Carrasco Lozano, M.E.E., Sánchez Olavarría, C. (2015) Las competencias digitales en estudiantes del posgrado en educación. Revista Lasallista de Investigación, vol. 12, núm. 2, 2015, pp. 10-18

[10] Cerón Martínez, A. U. (2017) Cuatro niveles de conocimiento en relación a la

ciencia. Una propuesta taxonómica. México, Revista Ensayo. Vol. 24-1. Universidad Autónoma del Estado de México, Toluca, Pp. 83-90.

[11] Cubillas Romero, J. R y otros (2016) Manual de tesis y trabajos de investigación. México, Universidad La Salle Victoria.

[12] Elmore, R. y City, E. (2011) La era digital. La Educarse en la era digital. Nuevos desafíos educativos. Ediciones Morata, S. L.

[13] Fabián Cohello

[14] García- Gutiérrez, Z. del P (2019), las competencias investigativas se caracterizan por ser transferibles, flexibles, creativas, trasversales, multifuncionales y complejas, además por tener un carácter holístico, dinámico, evolutivo y ético

[15] George Reyes, C. E, y Ramírez Martinell, A (2019) Competencias investigativas y saberes digitales de estudiantes de posgrado en la modalidad virtual. México, Instituto Tecnológico de monterrey, Universidad veracruzana.

[16] González, R. (2006) Estructura, historia y unidad de la ciencia a partir de la óptica de Eduardo Nicol. Red de Revistas Científicas de América Latina, el Caribe, España y Portugal Sistema de Información Científica.

[17] González Polo, M. (2016) Problemas frecuentes en la redacción de artículos científicos. Cuba EduSol, Vol.16, No.57, oct.-dic., pp.137-147.

[18] Habermas (1996) la metodología se ocupa de normas del proceso de investigación, que pretenden una validez lógica en relación con el ámbito sobre el que la ciencia en cuestión versa y simultáneamente una obligatoriedad fáctica para los investigadores, al respecto, sostiene:

[19] Henríquez Fierro, E. y Zepeda González, M.I. (2004) **E**laboración de un artículo científico de investigación. Revista Scielo ciencia y enfermería x (1): 17-21.

[20] Henry Granada E., H. en su libro titulado: La teoría: su estructura e importancia en la investigación científica, explica que la metodología es el estudio o teoría del método

[21] Herrera Acosta, C. E. (2015) Estrategias investigativas y su influencia en la elaboración del proyecto de investigación científica. Caso: estudiantes de la Facultad de Ciencias Políticas y Administrativas de la Universidad Nacional de Chimborazo. Riobamba, Ecuador, Tesis.

[22] Hessen, J. (1925) en su libro denominado: Teoría del conocimiento, explica sobre la teoría del conocimiento

[23] Jiménez (1998) la metodología constituye un conjunto de métodos, leyes y procedimientos, al respecto.

[24] Martínez Rodríguez, D., Márquez Delgado, D.L. (2014) las habilidades investigativas como eje transversal de la formación para la investigación. Universidad de Pinar del Río (Cuba)

[25] Lam Díaz, R. M. (2016) en su artículo titulada: La redacción de un artículo científico, explica que la investigación científica y la publicación del artículo científico son dos actividades íntimamente relacionadas

[26] Morales, V. (2002) en su investigación titulado: La metodología como ciencia y el método científico: un espacio polémico, explica sobre el concepto de metodología,

[27] Otzen, T. y otros (2017) La necesidad de aplicar el método científico en investigación clínica. Problemas, beneficios y factibilidad del desarrollo de

protocolos de investigación. Int. J. Morphol., 35(3):1031-1036.

[28] Rodríguez-Menéndez, M y. (2016) Problemas frecuentes en la redacción de artículos científicos. Cuba EduSol, Vol.16, N° 57, oct.-dic., pp.137-147.

[29] Rivas Tovar, L.A. (2011) Las 9 competencias de un investigador. Mexico, Revista Scielo vol. 40, n° 108, julio-diciembre.

[30] Tapia Cortés, C. y otros (2018) Las competencias investigativas en posgrado: experiencia de un curso en línea. Revista Espacios, Vol. 39 (Número 53) Año 2018 Vol. 39 (Número 53). Año 2018. Pág. 20.

[31] Sabaj, Omar (2009,) Descubriendo algunos problemas en la redacción de Artículos de Investigación Científica (AIC) de alumnos de postgrado. Universidad de La Serena Chile Revista Signos, 42(69) 107-127.

[32] Sánchez Upegui, A. (2016) El género artículo científico: Escritura y análisis desde la alfabetización académica y la retórica funcional. Medellín: Católica del Norte Fundación Universitaria, 304 p.; 17

[33] Días Sanjuan, L. (2011) La observación. Método

[34] Levano-Francia, L. y otros (2019) Competencias digitales y educación. Revista Scielo Propósitos y Representaciones, Voil.7 Nº 2/mayo-agosto.

[35] Martínez Rodríguez, D., Márquez Delgado, D.L. (2014) las habilidades investigativas como eje transversal de la formación para la investigación. Universidad de Pinar del Río (Cuba).

[36] Miro Quesada, F. (1959), destacado filósofo peruano, maestro universitario sanmarquino en su libro titulado: Hombre sin Teoría, destaca la importante de la teoría.

[37] Pulido, J. E. (2017) explica que los resultados de su investigación indican que la mayoría de los aspirantes al postgrado tienen escaso dominio de las competencias para elaborar

[38] Rivas Tovar, L. A. (2011) Las Nueve competencias de un investigador. México Rev. Investigación Administrativa, núm. 108, julio-diciembre, pp. 34-54.

[39] Rodríguez-Menéndez, M. y otros (2016) Problemas frecuentes en la redacción de artículos científicos. Cuba EduSol, Vol.16, No.57, oct.-dic., pp.137-147.

[40] Sabaj, O. (2009,) Descubriendo algunos problemas en la redacción de Artículos de Investigación Científica (AIC) de alumnos de postgrado* Universidad de La Serena Chile Revista Signos 2009, 42(69) 107-127.

[41] Sánchez Upegui, A. (2016) El género artículo científico: Escritura y análisis desde la alfabetización académica y la retórica funcional. Medellín: Católica del Norte Fundación Universitaria, 304 p.; 17.

[42] Tamara Otzen, T. y otros (2017) en su investigación titulada: La Necesidad de Aplicar el Método Científico en Investigación Clínica. Problemas, Beneficios y Factibilidad del Desarrollo de Protocolos de Investigación, al referirse a la importancia del dominio metodológico

[43] Tapia Cortés, C. y otros (2018) Las competencias investigativas en posgrado: experiencia de un curso en línea. Revista Espacios, Vol. 39 (Número 53) Año 2018 Vol. 39 (Número 53) Año 2018. Pág. 20.

[44] Villagrán T., A. y Harris D. P. (2009) Algunas claves para escribir

correctamente un artículo científico. Rev Chil Pediatr; 80 (1): 70-78.

[45] Villarroel. L. Rosmery, C. en su investigación titulada: Competencias investigativas, explica