



Guidelines for the elaboration of a scientific article IMRyD model¹

Pautas para la elaboración de un artículo científico modelo IMRyD

Diretrizes para a elaboração de um artigo científico modelo IMRyD


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KEYWORDS

scientific article, scientific structure, IMR&D model, academic writing

ABSTRACT. Due to the growing need for scientific publication and having few practical manuals, this article arises. The objective of this document is to guide the process of writing and publishing research results to the scientific community under the IMR&D format (Introduction, Methods, Results and Discussion). This document facilitates research, writing, publication and the elaboration process, both in qualitative and quantitative research, as well as how scientific encryption should be carried out to attract readers. In conclusion, the work aims to make rigorous scientific products viable, through their correct elaboration with guidelines clearly defined by the scientific community.

¹ This article has been prepared in accordance with the book "How to write scientific articles: a guide to writing and publishing scientific articles", 2nd edition, by David Auris Villegas.

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PALABRAS CLAVE

artículo científico,
estructura científica,
modelo IMRYD,
redacción académica.

RESUMEN. Debido a la creciente necesidad de publicación científica y habiendo pocos manuales prácticos, surge este artículo. El objetivo de este documento es guiar el proceso de redacción y publicación de resultados de investigación a la comunidad científica bajo el formato IMRyD (Introducción, Métodos, Resultados y Discusión). Este documento facilita la investigación, redacción, publicación y el proceso de elaboración, tanto en investigaciones cualitativas como cuantitativa, así como también, cómo debe realizarse la encriptación científica para captar lectores. En conclusión, el artículo pretende viabilizar los productos científicos rigurosos, mediante su correcta elaboración con pautas claramente definidas por la comunidad científica.

PALAVRAS-CHAVE

artigo científico, estrutura
científica, modelo
IMRYD, escrita
académica

RESUMO. Devido à crescente necessidade de publicação científica e à falta de manuais práticos, este artigo surge. O objectivo deste documento é orientar o processo de redacção e publicação dos resultados da investigação para a comunidade científica no formato IMR&D (Introduction, Methods, Results and Discussion). Este documento facilita o processo de pesquisa, escrita, publicação e elaboração, tanto na pesquisa qualitativa como quantitativa, bem como a forma como a encriptação científica deve ser realizada para atrair os leitores. Em conclusão, o trabalho visa viabilizar produtos científicos rigorosos, através da sua correcta elaboração com orientações claramente definidas para a comunidade científica.

1. INTRODUCTION

Worldwide there is a problem and great expectations to publish scientific articles in indexed journals. At present, the number of journals with appraisals per publication is beginning to grow gradually, which in some way originates a research decay of the academic community by finding fewer and fewer free spaces. However, "according to the DOAJ international directory, 65% of the world's quality scientific and academic journals that are published in open access do not charge to publish" (Babini, 2019, p. 4), a situation that somehow motivates researchers to follow in the scientific line of impact.

The world panorama shows us the growth of paid indexed journals, as well as an essential resistance from its free counterpart that still maintains its electronic and physical journals, non-profit as their support that favors the academic community and does not affect the quality of the work.

In this line, this article is of great importance for the scientific community and researchers who start their scientific writing by emphasizing the IMRyD model (Introduction, Methods, Results, and Discussion), similar to the IMRAD model (Introduction, methods, results, analysis, and results) in the process of constructing qualitative or quantitative research.

The purpose of this is to disclose the results in a clear and precise manner with academic, descriptive, explanatory, and argumentative language; to capture the interest of researchers and the academic public. The method reinforces the researcher to organize and write his text with techniques that guide tutors and readers in the understanding and evaluation of a scientific report.

Therefore, scientific work explores knowledge that complements other research or the development of different content that encourages discussions, debates, or controversies within academic and non-academic contexts.

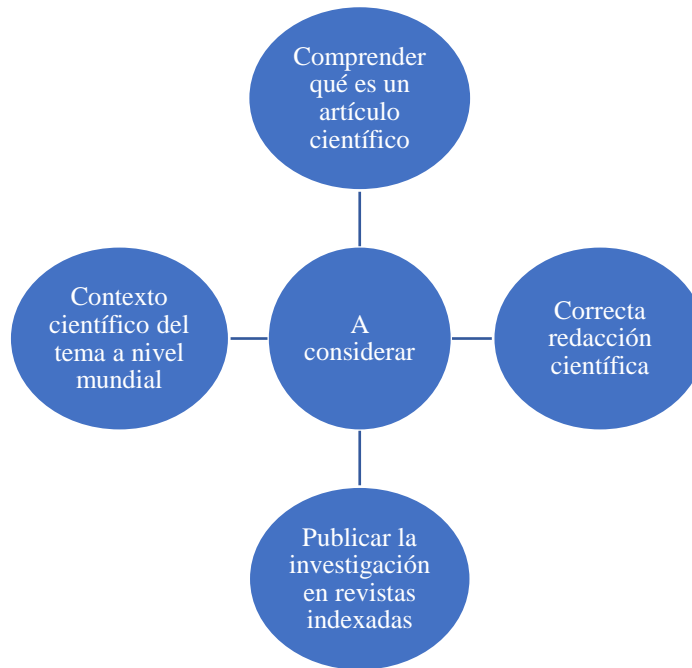
This IMRYD model requires quality standards that meet international requirements (United Nations Organization for Education, Science, and Culture - UNESCO), ensuring that the researcher can disclose their findings in digital



or printed indexed journals. In addition to the impact of their publication, the author will obtain recognition and more significant job opportunities that will allow them to contribute to the development of science.

Figure 1

Considerations for a scientific article



A scientific article is the final result of a rigorous investigation, which has followed all the appropriate steps and methods to sanction or determine a final result and describes: problem, objective, background, results, discussion and conclusions. A scientific article is considered important since “they contribute to the updating, synthesis and dissemination of new knowledge. This is valid (...) for all sciences and humanities” (Reyes, 2020, p. 106).

Need to publish scientific articles in indexed journals

In the world of scientific journals we find clearly delimited two categories, non-indexed and indexed journals, the differences between the two evidently seem to be quality, that is, an indexed journal usually asks for greater scientific rigor from the author of some research, as well as, it is more visible to the world, allowing the author greater recognition in the academic field. Chávez (2022) states, for example, that indexed journals must meet criteria such as:

periodicity, percentage of original articles, arbitration system, external evaluators, external authors, among others, that is, a series of quality criteria for scientific journals as a whole. Currently, scientific journals are considered of quality if they are registered in the different indexing databases and with an impact factor (p. 53).

Consequently, the massive visibility that authors receive, accompanied by the dissemination and knowledge of their work guaranteeing quality, necessarily creates a need to publish with greater emphasis on indexed journals,

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since the purpose of research is to be read, accepted or debated by others generating spaces for dialogue and solutions to human problems.

What is scientific writing?

Amat et al. (2020) define scientific writing as "a complex mental activity of the imagination, a process of collecting information, which is carried out with creativity and originality" (p. 18). That is to say; scientific writing has to do with a process of analytical and ethical thought that rigorously takes care not to take other people's ideas as their own, revealing new findings or perspectives on a particular topic.

Figure 2

Scientific article structure



After a brief look into the field of research and writing, the steps necessary for writing scientific articles are shared here.

2. ESSAY'S BODY

Guide to writing scientific articles

a) Title

The title is the label or brand of the article exhibited in the window of the scientific community at the planetary level within reach of a click; is the most representative component of the paper, written at the beginning of the text, which must be "simple and clear, attractive and brief, has less than 16 words, is centered and words with more than four letters begin with a capital letter" (López et al. al., 2019, p. 144). The title is really defined at the end of the writing of the article based on key topics that contain the main idea of the researcher. These titles and subtitles have autonomy and subordination since they are based on the content of the article.

The title is the first bridge between the researcher and the specialized legal community. It must arouse interest and be decisive with what is intended to be investigated; therefore, it clearly presents the variables to be treated and delimits the time and contextual space where the research is carried out. Although it is not a conventional rule, this formula is effective when preparing a title. (V+V+M+S+T+E).

In this sense, the title must be brief, clear, pertinent, concrete, exact, and precise to attract and remain impregnated in the reader's mind as an impressive name to be read massively. Therefore, the title must be framed within the communicative syntax and away from vagueness, focusing on the lexical economy, between approximately eight to fifteen words where it responds "to the characteristics of the titles of academic works [...] [and is proposed] clearly the theme and objectives of the work" (Boillos, 2020, p. 47), according to experts, the titles can be indicative and informative.

It is also possible to accompany this title with a "little title" or "subtitle" with the aim of delimiting or emphasizing the unit of analysis or, simply, attracting attention.

b) Authors

The scientific authors are those who have "significantly contributed to the conception, design, analysis, and interpretation of the data, as well as having participated in the writing of the article with a critical review, and having approved the final version of the manuscript" (Dal-Ré, 2013, cited by Espinoza, 2019, p. 227). Now, when it comes to several authors publishing an investigation, they must implicitly place their contributions in a way that shows they are committed and responsible for the content.

In a practical way, we write the surname and name, understanding that the contribution or contribution to the article is reflected in the order of appearance of the authors; Although there are no universal rules of the value of each author, it follows that the hierarchy indicates the levels of contribution to the work. As for the authors, only the first and last names are usually written, ending with an asterisk that indicates lines after, at the foot of the page or at the end of the text, where the complete data will appear, such as personal data, academic affiliation, line of research, personal or corporate email, sponsors, Orcid code and website. Now, is there a general rule of order for authors? No. We generally write based on the scientific journal or in alphabetical order, academic degrees, ages, and according to the contributions of the scientific work. Some consider the article writer first. In any case, the protocol of the journal must be adhered to, or an agreement between colleagues to consider the order of the authors.

c) Summary/abstract

Figure 3

Abstract structure



Summary or abstract of the paper is the scientific hook to "fish for academic and scientific readers", "it must be a text that reports completely and concisely on the results of the investigation, without the need to resort to the full text; the writing style must be very precise and punctual" (Salamanca, 2020, p. 170). Thus, coinciding with many methodologists and editors, it is considered the cover letter par excellence of any scientific article, known worldwide as an abstract or summary, being public and accessible by web search engines in hundreds of thousands of data written in the past tense and impersonal.

Experts in the matter recommend writing the abstract in two large spheres; First, what was the problem investigated? And second, what results have been reached? in addition to other important aspects such as the methodology?

It is usually written in a single paragraph with short, logical, objective, substantive, simple, concrete, and orderly sentences; this is in clear, precise, brief language, avoiding citing texts. These border on two hundred words or do not exceed fifteen lines, accompanied at the end with "key" words, known in scientific jargon as key topics or keywords.

The abstract is usually translated into the world's most used languages, such as English, Mandarin, German or other languages, written according to the protocol guidelines of the indexed journals which we wish to publish.

The abstract is finely crafted so that it can be published independently of the body of the article (it exists only solvently). It is important to know that, in order to be published in indexed journals, many times you only need to read them for approval. Hence the importance of compressing the essential points and capturing the attention and interest of the readers of the article, inviting them to read the full text.

The aspects to consider are: the problem as a central topic in a succinct way, the variables under study within the sample used, the methodology and design for its replicability, the objectives of the research clearly described and some theoretical framework, clear hypothesis, justification theory, the concrete results and, finally, the conclusions. Likewise, the social and scientific impact, considering the contributions and novelties. It is said that the abstract must be impressive, with the aim of impressing the mediators to be validated and evaluated, providing a brief overview of all the scientific work.

Summaries are drafted at the beginning, forging a miniature version of the document, here then is the first step in organizing the data.

In short, the abstract is the researcher's masterpiece that abbreviates the essential contents of the article based on the problem, objectives, methods, results, conclusion, findings and novelties in a highly motivating language with the aim of attracting massive reading and helping solve contextual problems, displayed in Database showcases worldwide and in any language.

Keywords: After the summary, we consider the key topics or keywords, these that "define our content well and what is also important, are specific to the object of study on which we develop our proposal" (Tena, 2021, p. 73). These words are selected through the semantic field technique for their conceptual weight. Nouns that appear in the title and are chosen with the aim of easy location by google search engines and the scientific community who usually focus on the topics from the descriptors. The topics are axes of the scaffolding that supports the structure of the scientific discourse that revolves around them. In addition, they facilitate their search and quick location in any database.

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Keywords: forms part of the summary also translated.

d) Introduction

The introduction of the scientific article condenses a thematic corpus, constituting a relevant theoretical framework, with the aim of persuading readers based on solid ideas about the problem to be investigated. So, in the introduction, you should:

Answer the question of what the problem is. Starting from the most generic to the most specific. Relate the article to the scientific context, make a discussion of related hypotheses (previous works, unresolved theses, etc.), and before closing the section, the objective and hypotheses should be included (Murillo et al., 2017, p. 15).

"What is known, what is believed about the problem?", this question, helps to develop and write the introduction of a research article, focusing our interest on the problem's core or thematic area, background, methodologies, research objectives, justification, and theoretical discussion, coinciding with the recommendation of the scientific canon, let us write in an interesting way, highly creative and open to the possibility of criticism, with the aim of attracting the interest of the reader.

We suggest starting the writing by going to an anecdote, question, some metaphor, citing the idea of an expert, explaining, reporting a fact, narrating a story, or simply formulating some future assertion.

The writing must be extremely coherent, brief, simple, critical, analytical, ordered in the appearance of the central topics, and written impersonally in the past and present tense. Articulating our ideas with the ideas put forward by other authors through connectors, considering whom we are addressing, a specialized, scientific, academic community, and being aware of that literate society, we draw the introduction scientifically, with the aim of stimulating interest through of our position, from a qualitative, quantitative or mixed approach, duly argued. Let us base the reasons why the subject should be of interest to said scientific community, having as a background the context and the scientific relevance of the investigated problem.

The state of the art, background and theoretical framework is argued by variables based on theories, comparing conclusions and results to know the frontiers of the subject studied, accompanying findings of researchers with the aim of building a theoretical corpus and continuing the recommendation by the scientific community. In this sense, "the value of the theoretical framework of reference is very important to critically evaluate both the interrelationship between the study variables with respect to exposure and the outcome of interest" (Quispe et al., 2020, p. 210).

The introduction pursues the purpose of providing a background framework to understand and assess the results of the research, dispensing with the search for previous publications. Likewise, let us add that the introduction is the argued theoretical extension of the summary and that, throughout it, we consider no more than fifteen references.

The introduction presents numerous and varied forms of writing. Here daring points of view can be given. It is also suggested to consider the investigated problem that briefly condenses the starting point of the article, formulating a scientific question, describing a summary diagnosis, providing a prognosis from a deductive

perspective, and considering the nature of the problem, its implications in reality, and the how the case is approached from different perspectives, answering why the investigation was carried out?

The purpose of the research is presented masterfully, pursuing the line of research and highlighting the thematic and methodological utility in the field of praxis, with the aim of achieving replicability by other researchers in similar contextual situations. The scope of the problem is important to pose, in addition to outlining the dimension of how it affects the sample and how to control it before it spreads like incurable cancer, so we must face it with the theoretical and methodological tools developed and evaluated by experts.

Let us highlight the importance of the problem to be investigated, its value, and its relevance to submit it to the research process that, once concluded, will serve to set precedents in future investigations and establish the relationship with the local, national and global social environment, in the same way, we highlight the contributions and contributions to the scientific world, to the thematic field to be executed in development policies, public policies, scientific transformation, real intervention, in the methodological aspects within scientific research in the process of finding solutions to the problem.

In the construction of the theoretical framework, the review of scientific literature is concurred, pursuing the research line of the scholar that subtly frames the context. Paraphrases, summaries, citations, and textual citations are used here that enrich the subtitles made from key topics with theories, laws, doctrines, approaches from different perspectives, and proposed hypotheses that serve as a theoretical background about the subject matter. It is recommended to consider the explanatory notes in the footnotes about important topics or those unknown and explain briefly with the aim of informing or clarifying the academic community.

To nurture the theoretical foundation, citations should not be more than five years old, being important to go to different scientific databases. In addition, the official methodological format required by the journal where one wishes to publish must be considered. Other research is used here, selecting the results and conclusions of theses, scientific articles, dissertations, essays, monographs, and important reviews at a local, national and international level, related to our theme and methodology.

The justification is the argumentative foundation of the reasons that pushed us to investigate and carry out the investigation. In this section, we consider the impact of the results of our research, as well as what part or aspect of the theoretical corpus is going to enrich or strengthen society to transform it, thus agreeing with Mario Bunge. During the elaboration of the theoretical foundation, we briefly highlight the hypothesis, if it warrants it, which will serve as a guiding motor during the research process.

Focus on the research methodology followed by the author, from the general scientific research approach, going through precise methodologies such as inductive, deductive, and hermeneutics, among others.

Finally, we justify and theoretically outline the study of the problem from epistemological, philosophical, methodological, scientific, and thematic approaches, accompanied by background and relevant updated citations under natural and highly persuasive language.

e) Methods and materials

According to López et al. (2018), "Methodologies play a very important role (...) since they are structures that comprise a set of well-defined processes, activities, and resources in order to achieve the stated objectives" (p.

16). Therefore, at this stage, we elaborate with high precision on the methodological procedures developed in an organized and orderly manner during the investigation process, considering the methodology, the design, and the chosen approach to investigating the truth, with the objective of its reproducibility. Here we answer the central research question, briefly justifying the reasons for our choice at the beginning of the writing of this section.

We answer questions: How was the research done? What have we used to do it? How have the participants or study groups been randomized? How have the concepts or topics been categorized? We write this aspect in the past and impersonal verb tense, narrating and describing the methodological application throughout the study, highlighting precise data or categories to achieve concrete results, agreeing with Belcher (2010).

Research with a quantitative approach requires statistical analysis. In contrast, research with a qualitative approach is subjected to rational, logical analysis, with standardized patterns and categorization of topics, resorting to their own methods.

Next, we organize this section under these sections, or simply each researcher decides the sequence to follow at the time of writing: Method - approach, and type of study.

Before explaining the processes, we must specify that the scientific methodology is the space where:

We describe, briefly and directly, the environment where the study has been developed, locating it precisely in time and space. These aspects constitute the basic principles of the universal scientific method, on which the scientific theory of knowledge is based, which bases on the scientific nature of the research methods that should apply to all sciences (Cortés et al., 2021, p. 112).

We say then that here we limit ourselves to explaining the reason for choosing the research approach and the experimental or non-experimental design and the type of cross-sectional or longitudinal study, descriptive, cohort, or clinical cases. Having chosen the qualitative paradigm, we describe the ethnographic, theoretical foundation, narrative, action research, phenomenological, and case study designs. To write this section, we will go to many sources, especially review similar articles in order to serve as a guide or adapt a certain model without losing our own personal style. We describe our reliable manipulation of these methods and explain under what methodological aspects the requirement of the research objectives was answered. Considering the epistemological and methodological paradigms duly supported following a structural logic, we explain the manipulation of the variables, always based on the retrospective perspective or prospective following our line of research.

Participating subjects. We describe how we have established the object of study, the representative sample of the population, and the sampling process, focusing on the unit of analysis or individuals who were studied and applied to the experiment, as the case may be. We express it through figures, contextualizing the real scope of its physical, temporary, and delimited environment, assuming its importance. If the unit of analysis has been human beings, we must have a letter of consent. Likewise, we describe the type of probabilistic and non-probabilistic sampling, as well as the inclusion or exclusion criteria accompanying the formula that was applied to obtain the size of the representative sample that guarantees the achievement of the study objectives and its external validity and internal.

Definition of variables. We define and operationalize the Variables from the conceptual definition to the operational definition, converting abstract concepts into concrete topics, from dimensions to indicators, observable, empirical, measurable, and written in concrete terms.

Materials. What was the job done with? It includes instruments such as surveys, interviews, data analysis, and other instruments validated by experts used scientifically, such as: questionnaires, data collection instruments, participant observation, documentary analysis, focus groups, and laboratory instruments. In this section, we strictly consider the technical specifications and precise characteristics of the materials used in the investigative experience, briefly enumerating, step by step, the names and exact technical denominations of the instruments.

Procedure: According to Hernández and Mendoza (2018), the scientific procedure is "oriented by the characteristics and context of the investigation, rather than by a statistical criterion of generalization. They are used in various quantitative and qualitative research (p. 215). Thus, the first thing is to ask: How did the work proceed? Where we detail in an orderly and rigorous manner the steps of data collection and analysis for its reproducibility under quantitative approaches. However, we doubt the same under the qualitative approach. This methodological section is intended to describe and explain the investigative procedures with the aim of being replicated by other researchers and achieving the same results. Regarding how the problem was studied, we narrate it descriptively and in detail, evidencing the scientific methodological management, facilitating a series of data with a high degree of accuracy that we have obtained under a methodological research framework. In this section, we describe exactly, step by step, and chronologically the technical aspects of how the experimental or non-experimental study has been carried out.

Statistical aspect. We explain exactly the application of the type of statistics used with the aim of communicating the reliability, validity, and reproducibility of the methodology that allowed us to obtain concrete results during the research process.

Collection of Quantitative Data. Let us explain how the data was collected for its subsequent treatment or scientific analysis, answering the following questions: What? Who? Where? and when?

Statistical Quantitative Analysis. In this aspect, we describe statistics if we have made use of them, basically, to ponder, measure, quantify, objectively, and realistically. In addition, consider the statistical type: descriptive, analytical, or inferential, as well as the way in which the variables and scales have been operationalized and measured, mentioning the type of software that we have manipulated, such as SPSS statistic 22 or Excel or another software duly described briefly and coherently, with the aim of giving it significance during the application process of these "instruments."

Qualitative Data Collection. We explain and describe data collection and analysis in parallel, answering the questions: Why? and how?

Qualitative analysis. We write the way how we have focused on the unit of analysis, from an epistemological reflection, categorizing according to central topics from the identification of functional patterns, codifying the data, the narrations, the photographs, videos, audios, interviews in depth, with the aim of exploring, observing, knowing and deepening under a framework of subjectivity, relative and involving the community, aiming to generate hypotheses, theories, doctrines, explained with a scientific foundation. There is also software to analyze qualitative data, such as Atlasti (Data Interpretation Tool), among others.

Phases of qualitative analysis. The qualitative analysis clearly presents three phases to overcome: plan, act, and reflect. The first is aimed at “thinking about the thematic concern and the possibilities, limitations of such a situation, to find out what can be done to improve it. Accordingly, the planning phase allowed the selection of the problem” (Sánchez et al., 2021, p. 121). The second is in charge of carrying out the investigative work, setting the limits, resources, and time that will result in new findings or perspectives. Finally, the reflection phase has to do with the truthfulness of the investigation and, perhaps, with a reinterpretation of it.

The ethical dose assesses the informed consent, the letter that endorses said procedure, the proof of anonymity of those involved in the study, and the confidentiality of those involved in said process, whether they were volunteers or not. In addition, we describe the ways in which we have handled the citations or models of other researchers, describing the proof of validation and feasibility of the research by an Ethics Council, appointed by the university institution, research institution, research laboratory, or sponsoring entity of the research study as suggested by Silva (2017).

f) Results

The results of the investigation are the precise information of the findings or response to the problem experienced and analyzed in materials and methods, written in clear language in the past tense and sequential.

In quantitative research, we present statistical figures or tables. A qualitative use rational, logical analysis, and the mixed one merge figures and rational, logical analysis.

It is necessary that each paragraph is preceded by an impressive subtitle and we avoid writing long paragraphs. In the results, we present compelling evidence through strictly selected data such as: charts, tables, and statistical graphs in a clear and precise manner, avoiding redundancies. When using statistics, we must be as clear as possible in the writing of the results so that we consider that the results phase is the shortest and allows condensing the new knowledge or the scientific answer to the formulation of the research question, research. They are novel contributions to the knowledge of a certain specialty or the approach of a theory or a new hypothesis. So, Ned et al. (2020) make it clear that:

The main function that the style of the scientific text fulfills is to test a hypothesis, which when it comes to some social science, said hypothesis is called an idea to defend, although in short, they fulfill the same function, and therefore, the scientific text must consistently argue that idea. The idea that works as a possible solution to the problem (p.7).

Let us not forget that the entire article revolves around the results of the investigation, written deductively, quantifying or qualifying, and referencing other researchers in different languages to give the investigation a higher level.

Analysis of data. In this section, we describe how the collected data, tabulations, and statistical analyzes have been analyzed and under what package or software we have worked.

Validation of the hypothesis. We test the hypothesis, comparing it with our results. When we prepare tables and figures, experts recommend presenting them in a succinct and summarized way, and in some cases, we do without them.

Charts, Tables, and Graphs. When we elaborate the charts and tables, we consider the recommendations of the scientific journals, going to the many software programs. Let us enumerate correlatively with its respective title and, at the bottom, the source to justify the origin of the impressive image. These graphs are derived from the crossing of variables examined in light of the different types of correlation analysis, multivariate among other statistics, responding to the research problem. Finally, when making these graphs, let's give them the capacity for self-explanation and persuasion.

Throughout the writing of the summary, we highlight the problem duly delimited in the context, accompanied by the clear formulation of the objectives, with a perfect descriptive, analytical, or inferential statistical analysis, explaining in detail the experiment, translating the empirical contribution that summarizes the scientific response, with the aim of contrasting and validating the hypothesis from an interpretive logic, analyzing the data discovered, describing the technical, methodological aspects, with the aim of giving weight to the results, correctly inserting the lines mentioned above into the tables and graphs using technical language.

The result is brief and condenses the relevant scientific answer in a didactic way, through statistical graphs or logical analysis based on the research question and the objectives, framed by the duly understood unit of analysis, written without any comment, submitting to the validation of the hypothesis. For this, Montoya proposes that "the results that are exposed are the essential ones to confirm or reject the working hypothesis. Do not provide data that can confuse the reader and that do not contribute anything to your work" (Montoya, 2016, 25m20s).

To end this section, Belcher (2010), drawing on his experience, recommends the following consideration, "any study has more results than those presented in an article. Do not use this section as a data dump. Present only the results related to your argument or hypothesis", and of course, that it responds directly to the scientific question, becoming a scientific contribution.

g) Discussion

In the discussion, we triangulate the contributions according to our line of research, comparing our results with that of other investigations and their implications in real or differentiated contexts and how it is possible to apply them in reality to transform from a scientific perspective. According to Barbón et al. (2019), the discussion is

the heart of the manuscript and the most complex section, where the scientific strength of a researcher is put to the test (...) aimed at interpreting and analyzing the results of the research in light of the scientific evidence and the contrast with what has been thrown by other researchers (p.381).

The objective of the discussion is aimed at transmitting and persuading the scientific and academic community the results obtained during the research process; comparing them with those of other studies that may coincide or be different; although some methodologists recommend seeking agreement with other conclusions based on empirical facts. Cassany (2005), for example, recommends its elaboration from critical analysis, which "suggests that every text has an ideology, as well as content, and that reading and understanding requires detecting the ideology and the position adopted by the author of the text" (p. 6).

We begin the writing, written in the present tense, explaining, describing, analyzing, arguing, the answer to the question formulated in the introduction, theorizing the results of the investigation, based on empirical foundations, field work or analysis, from an objective perspective. and criticism, explaining the weaknesses and

strengths of their work, assuming a holistic self-criticism of their work based on the results, highlighting the methodological problems or difficulties that arose in the research process.

We write this aspect of the article in a direct, coherent and precise language, preferably in the third person singular, from the general to the specific, deductively, following a logical sequence duly articulated through the connectors, avoiding as much as possible redundancy and using periods and followed.

The process of preparing the discussion presents enormous complexity due to the interpretation and objective assessment of the results, arguing, describing the observed facts, establishing theoretical principles, rethinking hypotheses, demonstrating our thematic and methodological expertise, emphasizing some points not resolved, and following the results; Let us highlight the theoretical and practical consequences in the different aspects of science and knowledge.

In the discussion, we explain the impact of the pilot test and how the validated instruments were effective for collecting results and applied to the unit of analysis in the framework of the experimental research.

In this aspect, we seek to answer some questions that were not resolved during the research process, allowing us to open new solution paths and lines of research, scrutinizing to strengthen the results and our scientific commitment, knowing what has helped us to solve the problem and put in cars the problems that other researchers might experience.

The implications of the results are concretized in comparison with other results cited in the theoretical framework, describing the value of the significance based on the methodological rigor followed, the same that can serve to develop other investigations in the same line under another context, applying imaginative logic.

These results promise to generate spaces for academic debate in the scientific community, such as the scope and impact at the national and global levels, strengthening the methodology followed, which allows validating the hypothesis, regardless of its acceptance or rejection.

We highlight the transferability of the results and the strengths of the article in the technological and theoretical field, demonstrating that the results have internal and external validity to create and produce objects that did not exist, such as the famous cell phones, and apply them in some specific problems, finding out the solution, recommendation and how this study enriches the existing theoretical corpus, thus serving as bibliographic material in similar studies.

Summarizing this aspect and always in agreement with the experts, we submit the results to objective, analytical and rational discussion, explained from the empirical or analytical theoretical foundation, strengthening the line of research and its implications, in reality, allowing the transferability of the results. In fields of real problems, written in a clear and persuasive language in the present tense, in the space of one page as methodologists maintain, generating scientific debate and interest by the public. Belcher (2010), appealing to his fine experience, offers us these recommendations that shed more light on the process of writing the discussion.

This section is the most complex and essential to write. The way you write is decisive in the rejection or acceptance of your article. Even with excellent data, the article may be rejected due to misinterpretation or misinterpretation. Structuring the discussion around the scientific argument will help readers understand the importance of the study.

h) Conclusion and suggestions

Hernández and Mendoza (2018) suggest that the conclusions must be consistent with the data (...). This part must be written in such a way as to facilitate decision-making regarding a theory, a course of action, or a problem (p. 520). Thus, the conclusion summarizes the article and the research suggestion related to the study objectives, written in the present tense and supported by empirical sources of our research. Next, we consider the following aspects within the conclusions.

- Highlight the results of the investigation.
- Opening the lines of investigation.
- Formulate possible applications of the results in the problems.
- Contributions and novelties.
- Confirmation or rejection of the hypothesis is considered.
- Consider the strengths and weaknesses of the research.
- Summarize the research findings.

Likewise, it can be added that the conclusion "includes the researcher's own statements regarding the fulfillment, or not, of the objectives, as well as those postulated as a result of the investigation" (Martínez & De León, 2021, p. 124). Likewise, at the end of the writing, a cognitive reflection or interesting thought or fact is made that definitely reminds the readers.

i) Sources consulted

According to the abundant recommendations in this regard, the Sources consulted or references of the paper must be written in the style that the journal requires, preferably we consider referents and fresh or recent deep investigations published in other indexed scientific journals in different languages is better because it opens up to many perspectives.

j) Aspects to take into account in all papers

- Data from the researchers: This space reflects what was said in the appearance of the authors.
- Appreciation. Optional aspect, thanking the thematic supports, the advisors, the proofreader, the sponsors of the work, the laboratories, the prologues, some scholarship, and the institutions, showing our good gratitude.
- Conflict of interest. It is important to highlight or clarify certain doubts among the authors about rights or patents if any.
- Appendix/annexes. This section allows us to reinforce our research through: figures, photographs, tables, charts, short texts, and important instruments correctly interpreted, listed consecutively with Arabic numerals, with their respective footnotes as a legend written in precise and direct language.

- Footnotes: Generally, in the footnotes, we clarify some topic that has not been dealt with sufficiently above; we define concepts and provide a bibliography by writing in small letters and without space.

3. CONCLUSIONS

This IMRyD model (Introduction, Methods, Results, and Discussion) allows the writer; to communicate or transmit the results of the study that facilitates the exchange with others, researchers, or scientists from other countries, contributing to global social and educational reforms. So, to prepare a scientific article, the proposed objectives must be closely related to the main idea (author's theme), keyword, methodology, and results. Therefore, this compilation highlights the valuable contributions of the study in a coherent, clear, and precise way that measures the depth of the author's knowledge and the experiences obtained in the investigation, as well as its evolution or replication.

The IMRyD encourages the teacher writer to generate a compendium that includes the objectives, materials, methods, results, and conclusions. In relation to materials and methods, the techniques handled in proportion to the projected problem are detailed, in addition to the statistical design and data analysis, specifying the means of how the information was collected with graphs and tables. Potentially, the effects of the research prevail over the innovations obtained, marking the statistical importance, predominating the results with the greatest impact, in comparing the hypotheses with others, scientific and bibliographical evidence, with the purpose of generating a mark and credibility in the academic guild.

The IMRyD precisely details the perhaps most important aspects of the investigation, such as the results and the discussion. First, it emphasizes that it must contain precise information on the findings or answers to the problem raised, experienced, and analyzed, which must be written in a clear and simple way to be understood by the whole society. Likewise, it differentiates the characteristics of the results of both quantitative and qualitative research. As for the discussion, it is made clear that this has to do with a computer triangulation that compares the results to finally give a final analysis on the subject.

The IMRyD is shown to be important because it is positioned as one of the few researches of scientific elaboration that details how to carry out the last points of an investigation such as the conclusions, the suggestions, the data of the authors, footnotes, appendix, among others. Thus, we show this research as a complete synthesis of scientific writing that details point by point to the researchers how to elaborate a rigorous work following each established suggestion in order to elucidate some questions of the scientific authors.

Conflicto de intereses / Competing interests:

Los autores declaran que no incurren en conflictos de intereses.

Rol de los autores / Authors Roles:

David Auris-Villegas: Conceptualización, curación de datos, análisis formal, investigación, metodología, recursos, software, supervisión, validación, visualización, administración del proyecto, escritura -preparación del borrador original, escritura -revisar & edición.

Pablo Saavedra Villar: Conceptualización, análisis formal, investigación, metodología, administración del proyecto, escritura -preparación del borrador original, escritura -revisar & edición.



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