



Review article

Updated criteria on educational research methodology: A bibliographic approach

Criterios actualizados sobre la metodología de la investigación educativa: Una aproximación bibliográfica

Crítérios atualizados sobre metodologia de pesquisa educacional: uma abordagem bibliográfica

Pedro Luis González Rivera¹



<https://orcid.org/0000-0003-3634-7690>

¹ Salesian Polytechnic University, Guayaquil Headquarters. Ecuador



pedroluisgonzalez1958@gmail.com

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ABSTRACT

Within the framework of the complexity of the current reality, university professionals must be able to turn research into an essential tool as leaders in social processes. The objective was to assess updated criteria of various authors on elements of the methodology of educational research. The methodology was based on the qualitative approach with the use of data to approach some sources on digital platforms. The consultation of

articles in impact journals was privileged, taking into account the immediacy of the results in this type of publication. The conception of the documentary research made it possible to apply the strategy of collecting bibliographic information for its subsequent content analysis with the use of bibliographic files and content sheets. In the results, the bibliographic analysis of the sources allowed us to affirm that the updating in topics of educational research and its methodology is a marked interest among those who reflect in written form their ideas about this important field of social sciences. The reading of the texts consulted allowed us to understand that the changing reality of the educational fact implies constant modifications in the scientific gaze from the inquiry around the educational problems. En la discusión se expresó que el estudio bibliográfico realizado evidencia la necesidad de la actualización constante en las temáticas de la metodología de la investigación educativa, a partir de su concepción como ciencia social en constante transformación y en función del objeto de estudio y el problema científico a resolver.

Keywords: science; scientific research; educational research methodology.

RESUMEN

En el marco de la complejidad de la realidad actual, los profesionales universitarios deben ser capaces de convertir la investigación en una herramienta esencial como líderes en los procesos sociales. El objetivo fue valorar criterios actualizados de diversos autores sobre elementos de la metodología de la investigación educativa. A partir del enfoque cualitativo de la investigación se aplicaron diversos métodos como la exhaustiva revisión bibliográfica para acceder a un grupo de fuentes en plataformas digitales como Scielo, Latindex y Scopus y se privilegió la consulta de artículos en revistas de impacto. La concepción de la investigación documental posibilitó aplicar la estrategia de la recopilación de información bibliográfica para su posterior análisis de contenido con

la utilización de fichas bibliográficas y fichas de contenido. Los principales resultados permitieron afirmar que la actualización en temas de la investigación educativa y su metodología es un interés marcado entre quienes reflejan de forma escrita sus ideas sobre este importante campo de las ciencias sociales. La lectura de los textos consultados permitió comprender que la realidad cambiante del hecho educativo implica modificaciones constantes en la mirada científica desde la indagación en torno a los problemas educativos. Las principales conclusiones evidenciaron la necesidad de la actualización constante en las temáticas de la metodología de la investigación educativa, a partir de su concepción como ciencia social en constante transformación.

Palabras clave: enfoque científico; método científico; investigación educativa.

RESUMO

No quadro da complexidade da realidade atual, os profissionais universitários devem ser capazes de fazer da investigação uma ferramenta essencial como líderes nos processos sociais. O objetivo foi avaliar critérios atualizados de diversos autores sobre elementos da metodologia de pesquisa educacional. Com base na abordagem qualitativa da pesquisa, foram aplicados diversos métodos como a revisão bibliográfica exaustiva para acesso a um conjunto de fontes em plataformas digitais como Scielo, Latindex e Scopus e privilegiou-se a consulta de artigos em revistas de impacto. A concepção da pesquisa documental possibilitou aplicar a estratégia de coleta de informações bibliográficas para posterior análise de conteúdo com a utilização de arquivos bibliográficos e arquivos de conteúdo. Os principais resultados permitiram afirmar que a atualização dos temas da investigação educacional e da sua metodologia é um interesse marcante entre aqueles que refletem por escrito as suas ideias sobre este importante campo das ciências sociais. A leitura dos textos consultados permitiu compreender que a realidade mutável do fato educacional

implica constantes modificações na perspectiva científica a partir da investigação dos problemas educacionais. As principais conclusões mostraram a necessidade de constante atualização nos temas da metodologia da pesquisa educacional, a partir de sua concepção como ciência social em constante transformação.

Palavras-chave: abordagem científica; método científico; investigação educacional.

INTRODUCTION

The complexity of the current reality implies the need to provoke substantial changes in the training of professionals who graduate from Higher Education so that they are capable of converting research activity into an essential tool in their work as leaders in social, cultural or social processes. productive activities in which they participate (González Rivera, 2022a). This situation has attracted the attention of both the management structures of university centers and international organizations. In this sense, the conferences and meetings sponsored by UNESCO have highlighted the social importance of the training of university graduates as professionals trained to solve the various scientific problems that arise in the extensive diversity of institutions where they are inserted as part of postgraduate work practice.

Research constitutes a fundamental activity to encourage educational innovation in teachers, which requires knowledge of fundamental aspects of research methodology from undergraduate training. The methodology of educational research acquires significant importance in the purpose of equipping students in Education majors with the basic tools for investigating teaching practice (González Rivera, 2022b).

For several decades, the study of fundamental elements of research has been prioritized in various publications, taking into account the definitions of science and scientific method and their significance in the research process. The components of the research project have also been addressed (Álvarez & Jiménez, 2001).

Scientific research, considered as a particular type of research, can cause skepticism, confusion and, sometimes, discomfort in those who begin the research activity due to insufficiencies in the educational work in the formation of such knowledge, skills and values (Zapana Calderón, 2006). For reasons such as these, it has been pointed out that the contents and texts related to scientific research are considered arid, alien and hermetic (Iglesias, 2021). Contrary to what was expressed above, it is stated that research can be relatively simple, useful, linked to daily activity and even fun and meaningful (Zapana Calderón, 2006). To achieve this, the focus must be on the quality of the message and the content in general to achieve the correct design and development of protocols and projects (Iglesias, 2021).

More recently, the explanation of key aspects of the research design and methodology, as well as the tools and other investigative attributes, have occupied the attention of specialists such as Pereyra (2020) and Arias González & Covinos Gallardo (2021).

García-González & Sánchez-Sánchez (2020) in their instructions with a methodological approach on the theoretical framework of the research design, consider an integrated structuring in the form of a system on the components of the project based on fundamental principles of the research process. In its approaches, the key factors are identified from the analytical and systematized study of the problematic situation and its links with the object of study and its field of action. Cardinal aspects from the methodological

point of view of the research are also advised.

In the conceptualization of the fundamental terms and in response to the question of what is research? it has been identified as a procedure with the characteristics of being systematic, analytical, interpretive and critical.

A first approximation refers to the etymological definition of the *Dictionary of the Royal Spanish Academy*. The text specifies that research in its first meaning refers to investigating with the express intention of achieving a discovery. From the reference of the same source in its third meaning, it is deduced that research pursues the purpose of increasing knowledge and is related to the systematic execution of certain intellectual actions that are combined with experimentation.

In general, research is considered to be the search activity that is characterized by being reflective, systematic and methodical; Its purpose is to obtain knowledge and solve scientific, philosophical or empirical-technical problems and is developed through a process. Scientific research is a "process of study, experimentation, conceptualization and verification and validation of the theories involved in the generation of scientific knowledge, (...), thus including both fundamental and applied research; and experimental development "means the process of adaptation, testing and refinement leading to the point of practical applicability, including innovation..." (UNESCO, 2017)

The concept of scientific research is associated with the interrelation between science, technology and innovation (STI), the debate on Social Sciences, the links between epistemology and ontology, the deepening of the notion of knowledge, as well as paradigms. scientists.

Science according to UNESCO (2017):

"...designates the process by which humanity, acting individually or in small or large groups, makes an organized effort, through the objective study of observed phenomena and their validation through the exchange of conclusions and data and the examination among peers, to discover and master the chain of causalities, relationships or interactions... it brings together subsystems of knowledge in a coordinated way through systematic reflection and conceptualization; and with this it gives itself the possibility of using, for its own progress, the understanding of the processes and phenomena that occur in nature and in society"

Likewise, it is attributed the purpose of executing various actions to "discover, describe, explain or interpret the facts, phenomena, processes, relationships and generalizations that manifest themselves in a certain area or context of reality" (Carhuancho *et al.*, 2019).

Rojas (2021) subscribes to the approach to research as an activity inherent to all thinking beings and not only to scientists or professional researchers. This is because at the base of research is the search for knowledge as a fundamental task in the existence of vital action. The above reaches a greater dimension in the case of professionals and teachers in their academic and intellectual activities, as well as university students. That is why it is convenient to know the elements of the design of a research project, as well as the aspects necessary to implement it and finally, prepare the research report.

Hernández Mendoza & Duana Ávila (2020) reaffirm the need to guarantee the practical investigative process from the application of the methods that provide the path in the development of the investigative project and the techniques that bring together all the instruments used for the application of the method. In turn, the instrument is conceptualized as the resource or means put into practice in the development of the research. For its part, it is considered that the use of information collection techniques can be defined as an important phase for the collection and transformation of data to meet the objectives and reach conclusions.

Taking into account the above, the application of the fundamentally qualitative approach in the research with the use of some quantitative data allows the approach to the main points of view of the sources consulted on open access digital platforms such as Google academic. The consultation of articles in impact journals is privileged, taking into account the immediacy of the results published in that type of publication. Likewise, the conception of documentary research makes it possible to apply the strategy of collecting bibliographic information for subsequent content analysis with the use of bibliographic files and content files.

Starting from the question about what are the most up-to-date criteria on the methodology of educational research? a bibliographic review of recent publications on topics related to the methodology of educational research is carried out. The objective of the work was to evaluate updated criteria from various authors on elements of the educational research methodology. This allows the approach to updated criteria and approaches from selected authors on cardinal aspects of educational research methodology, such as its conceptualization, methods, approaches, techniques and instruments, among other aspects.

The use of bibliographic screening techniques and content analysis allowed us to approach a sample of articles published

in journals located in databases such as Scielo, Scopus, Latindex and others. Books and other academic publications on the topic of educational research were also consulted.

The works were intentionally selected based on the relationship of results offered by open platforms, with the criteria that they offered specific information on topics of research methodology in general and educational research methodology in particular and had been published in the last 5 years. Some texts prior to those dates were considered due to the relevance of the information provided.

Subsequently, the content of the work was analyzed from a general perspective and specifying the objectives of each source of information. Finally, the aspects of the research methodology addressed were determined and the corresponding assessment was carried out.

DEVELOPMENT

From the previous methodological considerations, it was possible to know that for Salcedo & Delgado (2021) educational research constitutes one of the essential objectives in the work of those who dedicate themselves to teaching. That is why, from a theoretical, practical and methodological perspective, they recognize the pre-eminence of theoretical and methodological aspects that serve as a basis for the application of techniques and instruments in research and in the knowledge of the diagnosis of investigative skills. According to Ávila, González & Licea (2020), the Research Methodology dedicated to the study of pedagogical problems must be conceived from a social science approach. This way of assessing it allows us to equip ourselves with scientific criteria with tools for regulating the investigative learning processes of teachers in training.

Latorre, Del Rincón & Arnal (2021) have referred to the changes that have occurred in the methodological foundations of educational research in recent years. This has resulted in profound transformations in the ways of approaching research in the educational field with new trends in constructivist/qualitative research, evaluative research and action research. In this way, it will be possible to approach knowledge and interpret reality in Education from various methodological orientations.

Ethics is recognized as an aspect of high significance in educational research as expressed by Espinoza Freire & Calva Nagua (2020). This acquires the character of a didactic alternative in the process of teacher training and a social and regulatory construct at the behavioral level based on practice in the moral sphere in a specific historical time and in a specific framework. While from an ethical point of view the principles of respect, beneficence and justice serve as a basis in the investigation of teaching and educational processes in general, negative aspects are also sometimes manifested referring to disrespect for the subjects who participate, the copying the work of others and the use of false data. It is summarized that the development of the principles and values of ethics constitutes a factor to promote in the training of Education professionals through the use of scientific research.

The debated topic of quantitative research in Education has been inscribed in the history of research. The origins and background of the quantitative empirical model have been the subject of study among specialists on the subject. It has started from the opposition with qualitative methods, by identifying and describing the main features of the quantitative approach, such as objectivity, empirical evidence, measurement and quantification. Likewise, various test models have been discussed and their foundation in classical theory, the so-called generalizability theory, the latent trait theory and the criterial reference test (de la Orden Hoz, 1989; 217-236).

The treatment of the characteristics and advantages of qualitative research has been referred to by Guzmán (2021) when he reflects positively on its usefulness as a key tool in the area of social sciences. In particular, it was considered that the application of documentary-type research, supported by the compilation and analysis of both primary and secondary sources of information, facilitates a deepening of the theoretical foundations and basic principles. With this, it will be possible to delve into the elements of the argument present in the articles and other works of authors who have dedicated themselves to the investigation of certain topics.

In this way, qualitative research has been understood as a fundamental process available to those who investigate to understand and interpret the contextual reality that surrounds them. Consequently, it has been expressed that this paradigmatic model allows the essential aspects of personal experiences to be extracted, thereby facilitating the exposition of the most rooted elements (Guzmán, 2021).

It has been considered that taking into account the current context derived from the influence of the recent COVID-19 pandemic, the era of e-research has been inaugurated with the increase in research methodology with a qualitative approach. For this reason, the use of specific techniques and tools has increased with the support of communication and information technologies, which enable the collection of data, narratives and images from the possibilities of the resources of social networks and the Internet in general. Methods and techniques such as observation, interviews and the collection and analysis of information with adaptations to the new reality have become recurring elements (Hernández-García, *et al.*, 2022).

The clarifications on the methods and techniques in qualitative research by Piza Burgos, *et al.*, (2019, 455-459) were based on the particular significance of the qualitative research methodology within

scientific research. In this framework, the most general foundations of the qualitative paradigm and its methodological specification were recognized. This allows us to assess the knowledge and the necessary depth in the rigorous application of the methods and techniques of qualitative research that are most frequently used in the disciplinary field of social and human sciences (Bautista, 2022). At the same time, the particular features of observation, interviews and focus groups were pointed out, highlighting advantages and limitations of these most used techniques, as well as the validation of qualitative data.

The meaning and necessity of research methods from the classification into theoretical and empirical methods has been of interest in the study of the main components of scientific research in general and educational research in particular, as Falcón & Serpa (2021) refer. Full knowledge of its essential characteristics and its applicability in scientific research has been considered a basic factor based on its close relationship with the objectives, the type of problem and the object of study. This provides an essential scientific foundation to the investigative process to obtain the expected scientific results.

Gutiérrez (2020) recognized the importance of participatory action research as an option within educational research, based on a practical experience of application in a teaching context. Its application allows the transition of participants from the condition of "objects" to subjects who assume the leading position in the solution of the problem investigated from democratic, dialogic and inclusive conditions within the framework of their own concrete educational reality.

The development of skills for research recording is part of the training competencies in research methodology in close ties with the ability to search for information and the ability to communicate the results. This relationship is also manifested with teamwork skills and the

use of technological resources. (Maturrano, 2021)

Ávila, *et al.*, (2020) incorporated new approaches in the discussion of the interview and the survey, trying to overcome their conceptualization as investigative techniques. The designation was argued as empirical research methods from theoretical considerations and new proposals for classifying the questions within the questionnaire and the survey.

At the same time, the need to put teaching strategies into practice was valued so that the teacher in training develops skills in the use of the field diary, as a valuable component of the educational research instrument, (Fontaines-Ruiz, *et al.*, 2020).

The quantification of the texts consulted allowed us to recognize that 85% were published in the last 5 years, which allows us to consider an adequate level of updating. It is significant that 37% correspond to texts published in 2021. 14% were published before 2018 and were selected for their significant relevance and validity.

The bibliographic analysis of the sources consulted allowed us to affirm that updating regarding the topics of educational research and its methodology is a marked interest among those who reflect in writing their ideas on this important field of social sciences. The reading of the texts consulted allowed us to understand that the changing reality of the educational fact implies constant modifications in the scientific perspective from the investigation into educational problems.

In the articles and other publications studied, the treatment of specific topics of educational research and its methodological aspects in relation to key concepts, research approaches, researcher ethics, research methods, techniques and instruments was evident. For the authors consulted, the use of techniques and instruments such as information recording

and the use of the field diary are significant aspects in educational research.

The bibliographic study carried out shows the need for constant updating in the themes of educational research methodology, based on its conception as a social science in constant transformation and depending on the object of study and the scientific problem to be solved. Nieto Bravo, *et al.*, (2022) introduce an aspect that could seem controversial in light of research under the positivist paradigm, when they reflect methodologically on the validity of the use of narrative resources in educational research.

The author agrees with Fontaines-Ruiz, *et al.*, (2020) when they recognize that within the trends in research in the teacher training process, a current challenge is expressed in the need to encourage the profile of the professional to be complemented with researcher qualification. Teachers must be able to generate scientific knowledge in the educational field. This contradicts the limited position in the training of the educational professional, limited exclusively to academic training with a reproductive approach of already existing knowledge.

CONCLUSIONS

The resurgence of teaching and learning methodologies with an active approach in recent years implies the revaluation of the teacher's profile beyond the transmission of knowledge in the classroom. This conditions the need to develop investigative thinking in teachers in training, while at the same time they must be provided with knowledge, skills, competencies and values of the methodology of educational research.

The most up-to-date criteria analyzed in high-impact scientific journals and publications corroborate the existence of certain generalized criteria regarding the

conceptualization of scientific research in general and educational research in particular.

In summary, the insistence on the theoretical foundation of the research process in the educational field is observable in the publications, paying special attention to the aspects referring to the theoretical design of the research from aspects that justify the selected object of study. The relevance of the methodological design of educational research is corroborated by the adequate delimitation of the methods, techniques and instruments to be used in the research process. In correspondence with the characteristics of this study, the treatment of these cardinal themes of educational research has received general attention and approximation, which can be expanded in subsequent works.

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Authors' contribution:

The author participated in the design and writing of the article, in the search and analysis of the information contained in the consulted bibliography.

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