



TRENDS AND APPROACHES IN RESEARCH FOR COLOMBIAN UNIVERSITY EDUCATION.

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Summary

In this review, four tendencies are highlighted: a) technical, in which ex-post quantitative validation and the verification of correlations between variables are privileged; b) reductionist positivist, which starts from precise hypotheses in order to proceed to test them; c) interpretativist, in which the understanding of specific concepts is sought through the deepening of the daily life of the phenomenon, and; d) qualitativist, which is shown by the interest in describing the meaning and complexity of moral categories. These perspectives have had a great influence on the study of this field, achieving and enriching different achievements and contributions based on criteria of methodological mixture. I would like to point out that none of these publications (unless one escapes) openly manifests the research current underlying the selection of the categories of analysis, the design of the instruments or the way in which the results are interpreted.

What is observed in most of this type of research is that it focuses on the knowledge of ideal types, the sense of being and/or the factors surrounding the categories. The results of these studies affirm that it is feasible to measure them and make practical recommendations for university education. However, it is evident that they contribute little to scientific knowledge, that is, they offer a general view without results about the multiple relationships that are implied in the categories of study (the empirical evidence is reduced to the formulation of the validity of the measurement obtained). Nor does it offer complex theoretical analyses or contribute to the understanding of the causes of the phenomena studied.

1. INTRODUCTION TO RESEARCH IN HIGHER EDUCATION

For HERNÁNDEZ (1997), a university must be based on a scientific pedagogy (pedagogy without science? or a science without pedagogy?), in which all the different university levels, specifically the teaching staff, participate in research and improvement of teaching. According to Nadler (1997), despite the fact that research is the greatest imperative in professional development, the "majority" of experimental football is oriented towards topics of accentuated abstraction. It's likely that universities are forgetting their roots. In honour of the same hierarchy of principles, we will start with tetch&eather. The previous link, that of collective results, is the knot of institutions and communities, the close bond that traps them and imprints on them a bias of unity and structural coherence. To affirm that at each stage of training the appropriate educational strategies continue to be designed and that no one ever evaluates their terrible consequences... They are frequent cartloads of shovelfuls in the middle of the scientific laredos.

Until recently, problems in higher education (HE) were not conceived as an object of research. In this century, changes and advances in the research culture in education are evident, to the point



that it is already possible to recognize trends and approaches in universities in various regions of the world. In some countries, research in HE is carried out by the departments of education, in others by the various postgraduate programs, especially in pedagogy, but there is no culture of research and the knowledge base on its object: the universities, is hardly expanded.

1.1. Importance of research in the university context

It is said that community life, in essence, constitutes that generalized social learning that takes place generation after generation (Gutiérrez Ocampo & Martínez Cardona, 2022). Universal life, i.e., the formation of generalization, is also the historical process of the elaboration of knowledge in the course of such a historical development of humanity. This could be the minimum definition in an informative line of what should be understood by research, in this case in the educational field. Universities, in particular, play a decisive role precisely in the discovery, teaching and application of scientific generalizations. In its broadest sense, research involves all those activities aimed at discovering the workings of the physical world, creating new ways of demonstrating how it works, evaluating propositions about the behavior of the physical world in various ways in order to further reinforce it.

In our first approach to the trends and approaches of research in university education, it is pertinent to remember that the next step is to understand ourselves in a Colombian context. Although the plurality and multiculturalism in which our higher education institutions (H.E.I.) operate do not allow for generalizations, it is not unknown that we have been moving towards legislation in line with international regulations that seeks to promote the formation of an academic body in charge of the development of global, regional and local knowledge capable of facing new situations and questions in disciplinary terms. (Daza, 2020)

1.2. Objectives and benefits of educational research

On the other hand, some of the benefits that educational research brings to teaching professionals lie in the following aspects: - It allows us to broaden the understanding of the specific relationship between processes and training. - It facilitates the development of reflection, which helps in appropriate decision-making in teaching environments that arise in their daily lives. - Provides new teaching strategies and techniques aimed at strengthening training processes. - It fosters an imaginary and context conducive to the transfer of knowledge from theory to teaching practice. - It permanently generates a search dynamic, as it allows continuous innovation and adaptation in the university environment to new emerging didactic scenarios. These factors contribute significantly to the construction of the knowledge that university teachers guide in the teaching process.

Research in the field of education is aimed at answering questions such as: How do we take hold of the reality that surrounds us? What are the characteristics of educational practice? To what extent are educational processes and products meaningful? Educational research aims to acquire knowledge while improving praxis, analysing and evaluating teaching methods, the results of expository activities, how learners structure concepts and propositions (Coello, 2021). This leads us to the consensus that one of the fundamental objectives of educational research is to reduce the gap between pedagogical theory and teaching practice in university teaching environments. According to Ivars (2007), this is one of the most difficult and challenging for a researcher in the field of education, since it requires direct involvement with the reality of teaching known, understood and analysed from both a theoretical and practical perspective.

2. GLOBAL TRENDS IN EDUCATIONAL RESEARCH

Other studies of visualization of co-citation networks in the SE publishing community and cluster analysis have defined the lines of research as conversions from private to public, issues related to access and admission, configuration and change of national, international or regional systems; institutions and dynamics of individual trajectories (Suárez et al., 2020).

Recently, we found several studies that perform trend analysis in SE. This study shows the sequential view of publication in the analysis that refers to the temporality in publication, referring to whether the published articles have to do with the past. Although these data illustrate an important work on the trends carried out from 1960 to 2011, the trends are dynamic and there is a decreasing trend in



the description of the case and empirical comparisons over the other types of studies in percentage terms.

In this study, academic production in HE was tracked, tracking 47 specialized journals; fundamentally based on an emerging strategy in the field of bibliometrics and information visualization, such as the Web Of Scientometrics platform. With this strategy, sufficiently representative data were collected to infer an overview of the dynamics in the publication of SE, as shown in Figure 6.

Carrying out a systematization of research approaches to higher education (HE) implies looking at academic production at the local and global level. In this sense, exhaustive studies have been carried out on the trends in the publication of articles specifically in HE, mostly ascribed to the scientific domains of education and social sciences. These studies are generally based on the search in high-impact and recently implemented databases such as Web of Science.

2.1. Evidence-based research

In other words, the fundamental cognitive justification for justifying pedagogical styles that stimulate intelligence and not simply memorization skills; promote the competencies of all students in the development of creative processes that allow them to formulate their own questions (theoretically grounded) based on problems they have identified and not only follow canons of "true" research (Fajardo et al.2020). Reading research is understood as research that is carried out based on the allusion or interpretation of written research already published in order to propose theoretical foundations for new postulates or conclude on a specific problem.

The trend in the field of research is towards the current of reading-alluded research, taking as justification the obtaining of benefits in the resolution of problems and greater speed and economy in the production of knowledge. In the Colombian environment, Mendoza (2016) recently presented the systematization of a research experience based on the study of evidence carried out by young students and teachers to show innovative proposals with various themes: relationships ignored in the official university curriculum, use of technological tools in cognitive stimulation of subjects with mild cognitive impairment and the experience of stress of medical residents of the same entity. It allows us to see that their tasks and their research itself question, from a practical point of view, what their teachers have decided to ignore from the context and knowledge, using for this purpose the investigation of the evidence published in journals, test results, conferences, etc.

2.2. Interdisciplinary research

The interdisciplinary research currently being carried out at the university seeks a concerted effort in different spaces of analysis, which will allow a comprehensive and explanatory view of the phenomenon under investigation (Méndez et al., 2021). In this case, it is aimed at promoting joint approaches with high quality for entities that simultaneously enter the headquarters of the institution, which cooperate in the collection of information and formulate concerns aimed at clarifying the situation, carrying out a coordinated reflection. Interdisciplinary research with other professors from the same faculty, who work on the subject from other aspects, allows us to form more coherent sets of analyses, reflect together and obtain results that are more conducive to solving the problem. With this tendency, educational aspects are studied focused on their economic, social, political, legal, etc. consequences.

It is considered as an approach that goes beyond the conventional sciences, framing itself in a much broader way, as it addresses the various realities. Interdisciplinarity crosses the internal boundaries of disciplines to address social problems, not only from one discipline, but from several, interacting together in the search for more finished and complete answers to the phenomena of reality in any space and social context (Berridy and Fernández2021). At the same time, it has to have an integrative nature that can range from a multidisciplinary approach to a transdisciplinary approach, which is explained by the contribution and conjunction of the contributions of various areas of knowledge in the formation of a more general approach to the social problem.

2.3. Participatory research

To collect information and build knowledge, participatory action research uses a qualitative methodology based on the collection and analysis of qualitative data. In the development of each phase, which is detailed in Chapter 2.2, researchers work together with the actors involved to make



decisions regarding the most decisive aspects of their research, such as the object of study, the instruments for collecting and analysing information, actions, etc., in order to obtain the most complete and representative knowledge possible. All this not only provides valuable and accurate solutions, but also represents an improvement in the quality of training since it acts directly on teaching practices and generation of knowledge in the teaching task. In this way, the construction of the researcher's knowledge is carried out through the knowledge that he acquires of the collective relationship with those who participate in his action and research.

It occurs in specific contexts; it takes into account the conditions of the environment in order to act on them; encourages collective reflection to confront points of view, thus creating a context for discussion that provides information and solutions to problems; it requires a process of recurrent and systematic reflection on the action, with the aim of modifying and improving it; Theory is not a prerequisite for action, but results from critical reflection on practice: theorizing about reality in order to transform it; communication is fundamental in participatory-action-research, as agents of change create their knowledge in a progressive, shared way and go from the description of the situation itself to the analysis of its causes and the proposal of lines of action (Pedraza-Jiménez).

3. METHODOLOGICAL APPROACHES IN EDUCATIONAL RESEARCH

By resorting to the inductive course, it would be as if the particular theoretical framework itself were being formulated, which would be nothing more than the "mini-theory" on which all its expectations would have to be based (Nesse, 2022). Only if the researcher himself, based on his individual interpretation, and following a rigorous inductive procedure, had managed to configure his "mini-theory", would it make sense to venture to empirically test (i.e., to reconcile) some of his hypotheses. Hence, in general, they preferred to avoid the possible lack of rigor inherent in an inductive approach and tried to resort to the development of "anthropological" or "phenomenological" positions based on a criterion of adequate (and even eclectic) interpretation. In such a way that the observer would persuade his readers that, by virtue of the "similarities" with the situations known in other areas of didactic reality, this (apparent) similarity enables him to circumscribe the conclusions to a broad general scope. This would be achieved through a detailed process of collecting qualitative and quantitative information, where each of the variables involved in the study would be analyzed. Thorough and thorough observations would also be conducted using a variety of interview and survey techniques. In addition, content analysis would be carried out on relevant documents and emerging patterns would be looked for in the data. This methodology would allow the researcher to obtain a more complete and detailed view of the phenomenon in question. By using a rigorous inductive approach, you would ensure that all conclusions and generalizations are supported by solid and consistent evidence. In addition, a closer connection with the academic community would be established, as the research would be based on well-grounded theoretical principles and frameworks. In conclusion, the inductive approach would not only provide a solid theoretical-particular framework, but would also allow for a deeper and more meaningful understanding of the phenomenon studied.

In relation to the inquiry applied to the theories in order to verify the relationship between the statements that have been previously established and the facts that have been observed, there is an approach towards the concretion of the inquiry by the deductive or hypothetical-deductive direction. In this regard, it is proposed that educational research applied to the analysis of educational theories and the design and evaluation of didactic programs, in general, has followed one of the two paths that can be followed between theory and practice: the deductive or the inductive direction. The course to follow will depend on the degree of concreteness of the theories. If the theories used contain concise statements, and the results of program evaluations are capable of invalidating any of them, the researcher will be in a position to argue that a given scientific theory is the best methodological guide that can be used to carry out the action efficiently and effectively. In this sense, it is important to emphasize that it would not be essential to try to seek in the first instance an inductive procedure for the formulation of theories, thereby creating the appearance of directly and inductively using scientific theory in one's research. On the contrary, priority could be given to



the use of the deductive approach, which is based on the application of the general principles and laws established by theory for problem solving and decision-making. In this way, existing theories that have clear and precise statements could be taken as a starting point, and from there, the evaluation of programs and their potential invalidation of some of the statements established in these theories could be carried out. Through this process, the researcher would be able to establish solid theoretical foundations in his fieldwork, supported by solid scientific research. It is important to mention that educational research, when applying this approach, is not limited only to the mere validation or invalidation of the statements established in the theories, but also has as its main objective the design and evaluation of didactic programs that are effective and of quality. In this sense, the researcher must be prepared to use methods and techniques appropriate to the problem being addressed, as well as be in constant search of innovation and continuous improvement in their research work. It is necessary to bear in mind that the process of educational research involves the construction of knowledge and the generation of new theories that can contribute to the advancement of the discipline. Therefore, researchers must be aware of the importance of their work and their responsibility to society, as their work can have a direct impact on education and the development of individuals and communities. In conclusion, educational research applied to the analysis of educational theories and the design and evaluation of didactic programs requires a solid methodological approach that allows establishing a clear and precise relationship between the established statements and the observed facts. The use of the deductive or hypothetical-deductive approach can be particularly useful in this regard, as it allows theory to be used as a methodological guide for action, as long as the statements are concise and the results of the program evaluations are capable of invalidating any of them. In this way, fieldwork based on quality scientific research is guaranteed, which contributes to the improvement of education.

3.1. Qualitative vs quantitative

They concluded that, while in pure science, the use of non-probabilistic techniques generalizes and produces conclusions of dubious validity, in the teaching field it is not an obstacle to a pedagogical enrichment that, with the specificity and knowledge of the case, allows us to glimpse more general processes that may influence future interventions and studies (Ryan et al.2022). And they can even serve as a basis for the formulation of analyses of trends at a higher level of education (degree, university) or even comparative ones. The analysis of teaching and learning processes requires the combination of different docimologic methods that allow us to approach the phenomenon from different perspectives, since a multitude of variables converge in educational processes. In this regard, it is essential for educators to take into account the importance of educational research and the application of different methodological approaches. These approaches may include the use of quantitative methods, such as surveys and standardized tests, as well as qualitative methods, such as interviews and participant observation. By combining these different techniques, educational researchers can gain a more complete understanding of teaching and learning processes. In addition, it is crucial to consider the diversity of factors influencing education, such as socioeconomic and cultural context, teaching strategies used by teachers, and individual characteristics of students. These interrelated elements can significantly affect educational outcomes and should therefore be taken into account in docimological analyses. On the other hand, it is important to highlight that research in education is not only limited to the school environment, but also has an impact on the development of educational policies at the national and international level. Findings derived from educational research can provide empirical evidence to support the implementation of effective educational strategies and programs. In summary, the extension of docymological techniques in educational research allows for a deeper understanding of the teaching and learning processes. By employing mixed approaches, researchers can gain a comprehensive view of the factors influencing education. These findings are critical for improving the quality of education and promoting the development of effective policies.

In addition, it is important to note that Sierra and Norberh have exhaustively examined the various strategies, techniques and research, both quantitative and qualitative, that have been used and should be used in the analysis of pedagogical experiences in the field of discipline-based subjects in



university education. However, they have come to the conclusion that at the current stage of construction of the Bachelor's degree programs, with a minimum curriculum focused on the discipline and generally limited to 60 ECTS, the Carado-statistical approach is clearly insufficient to carry out an adequate analysis, let alone a complete explanation of the learning processes. despite its apparent methodological simplicity. It is clear that a broader perspective and a more comprehensive approach are required to effectively address these issues, as only in this way can meaningful and relevant results be obtained that contribute to the improvement of educational quality and a deeper understanding of learning processes in the university environment.

3.2. Participatory action research

If research and action are understood as a single cyclical sequence of steps or phases, in which each phase is concomitant and complementary as elements of the process, the possibilities of theoretically explaining the connection between the problem and the problems encountered, as well as the explanatory framework of the interventions that are carried out, are minimized.

However, this approach is a qualitative work methodology in which a human group addresses problems of reality with the intention of transforming them, through a systematic and critical process of reflection-research-action, to achieve desired ends (Gupta et al., 2022). Those who carry out the research are the subjects or communities that are the subject of the research. One of the main characteristics of qualitative research is the ultimate intention to build knowledge from and about the impact on reality. The essence of the action is based on the fact that decisions are made to collaborate in the change of the reality to be investigated and that we, as the researchers, are probed and inserted into reality.

However, despite its weaknesses, IPA is a qualitative methodology aimed at change that conceives both research and intervention as moments of the same process, reaching mutual feedback. It is flexible and interactive, so it values the contribution of various disciplines to create proposals that satisfy different actors, and it is a questioning of education based on the transmission of knowledge, an issue that is close to the philosophy of the CEALEX program.

IPA is, in general, a methodology in which not everyone has experience, which leads to technical difficulties in its application, as well as abuse in the numbers of people to be explored, as this can cause social burnout. Consequently, the data collected with empirical evidence are few, meaning that the results of a study of this type lack a level of representativeness to draw generalizations in the medium or long term.

3.3. Case studies

Specifically, from the case studies, from an epistemological position where knowledge consists of traveling a long and complex path from common knowledge, where the cause of the phenomena can be established through the meticulous analysis of them (multifaceted), where reality is extremely dynamic and diverse, with an infinity of aspects and ways of life (plural and dynamic) that is known from the deep promotion of differences (critical) of the world. paradigm from which the study of the object is approached (positivist, postpositivist, sociohermeneutic, sociocritical, qualitative, quasi-experimental) and underlying comprehensive interests (psychohermeneutic, sociohermeneutic and psychosocial). The case study can be defined as the fundamental conceptual framework of a research, whether qualitative, quantitative, experimental or non-experimental (quasi-experimental), through which the logical strategies that will be used to precisely comply with the objectives and purposes developed in scientific research are deployed in detail (Morgan and Nica2020).

This approach corresponds to a late methodological and epistemological stance, that is, the interest in the case arises after having established a clear position on the specific problems of Psychology (technical and practical doctrine), unified theory addressing specific issues for each of the problems of the discipline, deep understanding of the objects and nature of phenomena, through clear scientific evidence and varied authoritative voices (knowledge from different aspects and scientific disciplines). In addition, there is a palpable appreciation for the importance of the knowledge of all disciplines with respect to their method, definition and scope, seeking to satisfy specific conditions about the relationship of their objects (ontology). The subject possesses a broad capacity for



knowledge (epistemology) and a method of generating genuine or critical knowledge, fundamental for the development and advancement of the discipline.

4. CHALLENGES AND OPPORTUNITIES OF EDUCATIONAL RESEARCH IN COLOMBIA

Education is the fundamental pillar for the integral development of people. In his analysis that addresses the social construction of the professional, he highlights that in the professional field there are strong and weak nodes that balance the construction from praxis with research, establishing a characteristic dialectic, asymmetrical with the preeminence of knowledge generated in academic contexts or direct transfer from the latter to the field. The training process in education seeks to combine theory and practice, allowing professionals to acquire skills and knowledge that can be applied effectively in their daily work. Pedagogy and psychology play a fundamental role in this process, as they address aspects related to learning, cognitive and emotional development of students. It is important to note that the research product does not always interact dynamically and quickly with praxis, but afterwards. The results of this interaction tend to constitute a wise knowledge, to be partisan, establishing fragile ties between both scenarios. This means that while research provides knowledge and theories that can enrich educational practice, its effective implementation can take time and require adaptations to specific realities. On the horizon of human, social and ethical construction, education training seeks not only to transmit knowledge and skills, but also to cultivate values such as solidarity, respect and justice. Education professionals have the responsibility of educating the new generations, promoting their integral development and preparing them to face the challenges of today's world. In conclusion, the social construction of the professional in the field of education is a complex process that involves the interaction between theory and practice, as well as training in pedagogical and psychological aspects. The results of this construction can be valuable, but they also require careful analysis and adaptations to specific realities to be implemented effectively. Education is a fundamental pillar in building a just and equitable society, and education professionals play a crucial role in this process.

In line with the problems just described, several authors critically review the situation of university teacher training and agree on certain trends. They argue that the field of research at the university level has grown rapidly in Colombia over the last decade, although accompanied by some gaps that should be filled. The papers are based on three sources: books and articles in national journals, theses from higher education, and communications from the different research groups of existing higher education institutions. It is important to consider that there are several research groups recognized, validated or classified by Colciencias (thus different from those of the other sources consulted). A first gap refers to the conception of research on teacher education as a field configured by different models, each of them aimed at solving certain problems or concerns. It would therefore be necessary to identify these different conceptual references and try to compare their degree of relevance with the reality of the country. The second issue concerned the reference to the impact that research has on the practical, professional sphere, to the extent that, despite the quantitative growth, the impact on training and educational work is not perceived. From this perspective, it is necessary to review the type of research questions that are asked and the motivations for doing so, since it is often not possible to provide feedback or promote the adoption of contextualized and relevant knowledge. In this sense, there is a need to expand studies on teacher training in relation to current demands and challenges. It is essential to approach research from a critical and reflective perspective, which allows us to understand the dynamics and transformations in the field of higher education. In addition, it is necessary to explore new theoretical and methodological perspectives that allow progress in the construction of solid and relevant knowledge for the development of teaching work. It also highlights the importance of strengthening the relationship between research and teaching practice. It is necessary to establish channels of communication and collaboration between researchers and teachers, so that the results of the research can be applied in the educational field in an effective and meaningful way. This implies greater interaction between academia and the educational environment, in order to generate knowledge that responds to the needs and demands of society. On the other hand, the importance of promoting teacher training



based on reflection and critical action is raised. Teachers must be able to question and analyze their own performance, constantly seeking to improve their educational practice. In this sense, research can play a fundamental role in providing tools and strategies that allow teachers to reflect on their practice and make informed, informed decisions. In conclusion, teacher training in the university environment requires a greater research impulse to address current challenges and demands. It is necessary to strengthen the relationship between research and teaching practice, promoting critical reflection and informed action. Only in this way will it be possible to provide a quality and relevant education, which contributes to the integral development of students and the improvement of society in general.

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