



Pedagogical management strategies for research training in the Ecuadorian high school



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Abstract

The present objective was to analyze the strategies of research pedagogical management for research training in the Ecuadorian high school, with fifty teachers who develop activities at the Baccalaureate level, with the application of the correlation method of descriptive quantitative analysis, the survey was used to apply to the sample subjects for the analysis of the perception of the variables of this study. The results of the descriptive analysis showed that more than 90% of teachers develop the two variables at the middle levels, not reaching excellence due to various factors that affect their skills. During the inferential analysis, the Pearson test has been used, where it was possible to determine at the level of the general variables that the correlation had a value of 0.47 and a significance of 0.001, reaching the conclusion that between one and the other variable there is a positive relationship, of medium intensity and that teachers must strengthen their skills regarding pedagogical management, as well as training linked to research.

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1 Introduction

Pedagogical management, within the educational field, is very important because it allows ensuring the fulfilment of management objectives linked to the achievement of student capacities, in this way the strategies that are developed in the process of pedagogical management linked to research enable learners to develop investigative skills, for this, adequate pedagogical strategies must be developed that allow that teachers develop adequate research training. This article sought to analyze the relationship that exists between the approach of investigative pedagogical strategies and their effect on the research training that they develop in the Ecuadorian high school program (Korthagen et al., 2006; Evans, 2008). The pedagogical management for research raises the knowledge of the educational reality, from the methodology and also the epistemology to explain, understand and interpret the different social phenomena, for this, various strategies must be proposed such as theoretical approaches, the systematization of pedagogical research and the development of the processes of the direction of educational practice, each one linked to student learning (Zuñiga, 2020). In the same way, it is mentioned that management implies that various activities are carried out with which they seek to meet a specific objective. (Lopez, 2017). In the same way, it is indicated that management can occur in various areas such as administrative, management, and pedagogical, among others, but all of them have the same purpose, that of achieving results in a given period (Bardales, 2020). Melendezso pedagogical management is an activity that focuses on the actions that allow adequate development of the teaching activities, for this, a pre-defined pedagogical process must be followed and that the teachers comply with (Arreola et al., 2019), carrying out adequate management of pedagogy reflects several benefits for teachers, among which is the increase in skills and job performance in their teaching activities (Gutierrez, 2020). On the other hand, the issue of innovation is also present in the face of new changing realities, such as the use of new technologies or the increase in social network platforms, which make teachers adapt their pedagogical strategies to the new realities (Baque & Marcillo, 2020).

On the other hand, management implies the planning of the activities to be carried out, based on general guidelines provided by the Ministry of Education, with that information they develop an activity plan with a schedule of times to be fulfilled and resources that are allocated to the strategies (Ernawati et al., 2022). that are going to be implemented as well as the progress control processes and performance of the objectives that have been proposed (Solís et al., 2017). For the development of an adequate process of pedagogical management linked to research, the guidelines indicated by the annual curricular plan proposed by the Ministry of Education linked to this speciality must be followed and develop the appropriate strategies that give way to the development of the educational process, maintaining the quality of the same that includes the creation of motivational environments for students that lead them to the development of reflection and analysis capacities, in addition to communication, creativity and abstraction and criticality of the students, for this it is necessary to have specialists who are knowledgeable about the subject including pedagogical knowledge that complements the transfer of knowledge in a didactic and understandable way for students (Perez & Pino, 2018). Research training is understood as the process to teach students the aspects of scientific research and that can generate various skills such as the search mechanism for validated scientific information, as well as how to develop each of the cycles of a research project that It covers the theoretical framework, the study of art, the methodology, the means or resources for collecting information, the analysis of data and showing the results, as well as generating knowledge about the different regulations that are used at the time of writing. of the scientific reports, and the computer programs used for its validation. Very important knowledge so that the study can be validated by the educational institution (Llontop & Gonzales, 2017).

This research is justified by the importance it has in ensuring the quality of the educational service, for the advancement of scientific research, so it is necessary to analyze how the strategies of pedagogical management that are linked to research are related to research training. in students, allowing with the results to take actions that allow creating proposals, means or strategies for the improvement of each of these variables, it is also justified by the relevant contributions to the effectiveness of educational quality to

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generate interest in society in its As a whole, even more so if it is confirmed that the increase in scientific studies contributes to the development of the community, it is also justified to the extent that educational institutions benefit from the publication of scientific articles, generating economic benefits and prestige as an institution (Klein, 2008; McBane II et al., 2005). The development of adequate management of education allows proposing of various guidelines and strategies that generate various benefits to educational institutions, for this it is necessary to generate adequate control of the entire environment in which educational activities are developed internally and externally, having to being part of the management the study, weaknesses, threats, strengths and opportunities and threats, generating with this analysis of the skills and tactics that allow the strengths and opportunities to be embraced, extending to the monitoring and conversion of weaknesses and threats into opportunities for growth in the period in which the training processes of the students are carried out (Couple, 2020).

The relevance of this research is related to offering the appropriate strategies of pedagogical management so that they can improve how investigative training is developed, since it is the responsibility of the teachers and the hierarchical plan of the educational institutions, to ensure the management that allows an adequate educational process linked to research, the administrative processes linked to pedagogical management must be carried out following the protocols established by the administration seeking to ensure that all resources and means are available to develop adequate research training (Atkinson, 1999; McGill et al., 1992). The management of education in Ecuador is framed on two legal bases, the first is governed by the current political constitution of the country, which provides the basic guidelines of the rights and duties of the inhabitants and based on this, the government through the Ministry of education raises regulations and plans; such as the ten-year plan for education 2016-2025, this being a management strategy or tool that provides the guidelines to which education should be directed, so it is used for the development of strategic plans in educational institutions, planning the objectives, goals that must be met in a period (Gudiño et al., 2021).

The strategies developed by educational institutions for the implementation of the pedagogical management of research are based on teaching-learning, where teachers develop the theoretical aspects and basic conceptualization of research while students in the process also develop their practical learning (Eliasson, 2000; Leitao & Ahern, 2002). Thus, based on this model, various subjects related to research are assigned, ranging from the principles of research to applied research, a process by which the student acquires the skills to prepare a research project that can be published (Suryasa et al., 2022). To achieve this objective, the institutions carry out preliminary work preparing all the necessary resources for their proper development (Borrero, 2019).

Research training is an action in which the teacher has the fundamental task of providing knowledge regarding scientific research, providing the basic concepts, theories, and procedures and at the same time must create strategies so that students can develop their research, using all the theoretical knowledge learned, so spaces and techniques must be created for students to investigate, elaborate and investigate, improving what is known within their speciality (Vitalina et al., 2022). It must start from the knowledge of the educational reality, through methodological and epistemological analysis, for this, two integrative strategies of research training must be proposed, the first is the management of research from a practical perspective and the second is the generation of instruments linked to pedagogy research (López et al., 2017).

Research is generally concentrated at postgraduate levels, where research skills are promoted in students to develop their research that will ultimately serve to obtain their degree of specialization (Richardson, 2011; Snyder, 2019). However, there is a need to strengthen these academic skills not only for an academic job but also so that they can be used in their professional life, the skills developed such as analysis, knowledge, scientific research processes and the publication of works in specialized magazines that are not necessarily linked to obtaining a professional degree, also that they develop research as a professional activity, strengthening the knowledge that is developed in their speciality (Valdés et al., 2018). It is necessary to emphasize that for research training to be developed, teachers must have the necessary knowledge so that they can teach the subjects in this field, therefore, it is very important that one of the main strategies be implemented as part of pedagogical management is the training or hiring of specialists who can develop, the learning sessions adequately and understandably for the students, the constant training and the execution of published research projects add considerably to the experience of the teachers to develop research training, so that this competence is emphasized in professionals who seek to teach this speciality (Cachinell et al., 2017). Research also reinforces students' knowledge since by developing this process they generate

discoveries, and increase their ability to analyze and propose solutions to various problems (Garcia et al., 2018). It is for this reason that educational institutions must offer incentive programs for research in undergraduate students so that they become familiar with the methodologies and that these do not seem complicated when they are at higher levels (Cuéllar & Serrano, 2017).

The objectives of the present investigation were the following:

The general objective that was proposed in this study was: Analyze the Strategies of investigative pedagogical management for investigative training in the Ecuadorian high school that is deployed in specific objectives: Analyze preparation for learning investigation and the investigative training of the Ecuadorian high school. Describe the relationship between the teaching processes and the research training of the Ecuadorian high school. To determine the relationship between the investigative institutional management and the investigative training of the Ecuadorian high school.

2 Materials and Methods

This research used the non-experimental methodology, with a descriptive correlational design, quantitative approach, basic level and a sample of fifty teachers from the educational institution. The non-experimental methodology is focused on research studies that do not generate any type of alteration or manipulation of the variables found, their behavior was analyzed in their natural state, and it was also used for the analysis of human factors in the behavior of their environment. this methodology is very important for the analysis of variables individually, as well as for analyzing their behavior when interacting with other variables. (Hernández-Sampieri & Torres, 2018).

The study of the correlational descriptive type seeks to analyze at first the behavior of a variable individually, describing its characteristics, opinions, perceptions or behaviors, this being the descriptive stage, there is also the correlational one that will analyze the behavior of the variable against to other variables, this can be given by two aspects, the intensity defined by the significance and the directionality, defined by the value of the scale that goes between 0 to 1. (Hernández-Sampieri et al., 2017).

Quantitative studies analyze the behavior of the variables with the use of numerical values and with statistical techniques that can be descriptive or inferential, which allow determining the behavior of the data and capturing the results of the variables, as well as the type that correlation that it has as a whole (Torres & Sampieri, 2019). The study sample consisted of fifty teachers who have been selected based on the following criteria.

3 Results and Discussions

The study focused on finding out some of the main strategies of pedagogical management used by teachers for teaching research and how they improve research training; To do this, a group of professionals participated in the research, being selected based on the following criteria in figure 1.



Figure 1. Criteria for inclusion and exclusion of teachers

The results that were found are presented according to the objectives set. Table 1 indicates the frequency of the levels of investigative pedagogical management.

Table 1
Levels Strategies of investigative pedagogical management

Levels	Preparation for investigative learning		Teaching processes		Institutional investigative		management Strategies of investigative pedagogical management	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)	frequency	Percentage (%)
High	3	6	2	4	1	2	3	6
Medium	46	92	48	96	43	86	47	94
Low	1	2	0	0	6	12	0	0
Total	50	100	50	100	50	100	50	100

During this investigation, some strategies that involve investigative pedagogical management are considered. In bars the measurement in percentages of the levels of research pedagogical management strategies, shown in Figure 2.

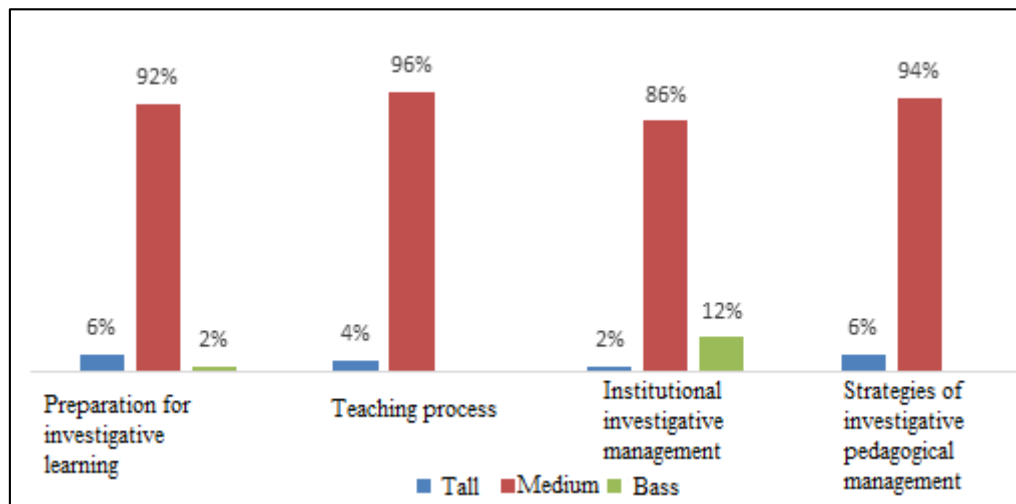


Figure 2. Strategies levels of investigative pedagogical management

The results that have been found and indicated in the table and figure 1, indicate that for the preparation of investigative learning 92% of teachers have a medium level, 6% a high level and only 2% a low level, for the teaching processes, there is a similar behavior since 96% are at the medium level, and 4% at the high level, with no data for the low level, for institutional management shows that 86% is at the medium level, 2% at the high level and 12% at the low level, finally, the pedagogical management strategies for research are 94% at the average level, 60% at the high level and 0% at the low level, clearly showing that teachers apply pedagogical management strategies but do not develop them to their highest level, and actions must be implemented that allow their increase. It is important to consider the frequency of the levels of strategies that were considered in the same investigative training processes that are presented in Table 2.

Table 2
Levels Strategies for investigative training

Levels	Conceptual training		Research processes		attitudes Research		Training	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%
High	1	2	0	0	0	0	0	0
Medium	46	92	47	94	37	74	49	98
Low	3	6	3	6	13	26	1	2
Total	50	100	50	100	50	100	50	100

Likewise, it is important to observe in figure 3 the levels of strategies for training presented in percentages to obtain a quick idea of the results obtained in this field.

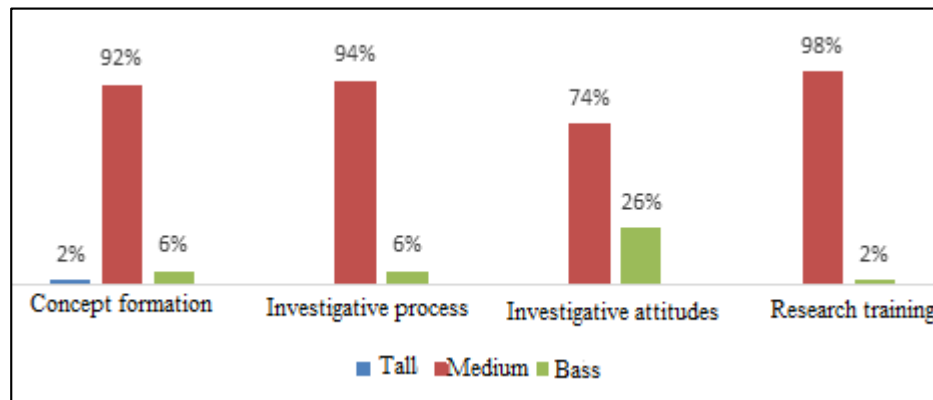


Figure 3. Strategies levels for investigative training

The results that are being presented in table 2 and figure 2, for the conceptual dimension 92% are at the medium level, 2% for the high and 6% for the medium, in the research processes dimension 94% are at the medium level and 6% for the low level, for the investigative attitudes dimension 74% for the medium level, 26% for the low level, finally for the research training variable the medium level 98% and only 2% at the low level, clearly showing that teachers develop research training but not at the highest level, and may have many deficiencies in the teaching-learning processes. On the other hand, Table 3 presents the levels of correlation results between the variables proposed for this study.

Table 3
Correlation levels of the variables

Variables	Correlation value	Significance
Research learning with research training	0.584	0.000
Teaching processes with research training	0.21	0.143
Research institutional management with research training	0.441	0.001
Research pedagogical management with research training	0.47	0.001

The correlation found between the two variables The study shows that there are correlation values of 0.47 and a significance of 0.001 at the level of the dimensions for the teaching processes in research training, the value was 0.21 and the significance of 0.143, this correlation being not significant, the other two dimensions have values correlation of 0.58 and 0.44 and significance of 0.00 and 0.001 respectively, indicating that there is a moderate correlation between the two variables.

4 Conclusion

From the results obtained, the conclusions reached are presented. It is concluded that the dimensions that have been analyzed are Strategies of investigative pedagogical management and investigative training, in both cases, teachers develop them at a medium level, this being a factor to improve since research is one of the activities that they must be considered very important and a priority for the development of all the specialities. Regarding the correlation between teaching processes and research training, it is shown that there is no significance, and both can be affected by other factors, having a Pearson value of 0.21, concluding that they are not significant.

The dimensions of Investigative Learning and Investigative Institutional Management are significantly related to significant training, having values of 0.58 and 0.44 respectively, in addition to being positive values, the relationship is direct, medium, and significant. Finally, the correlation between the general variables has

been 0.4, showing that both have a direct, medium, and significant relationship since both variables influence each other, for which reason the competences of teachers must be improved both in pedagogical management and in the training processes at the investigative level.

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