



## THE ROLE OF THE TEACHER ADVISOR IN INITIAL TEACHER TRAINING FOR A BACHELOR'S DEGREE IN MATHEMATICS AND A BACHELOR'S DEGREE IN SPANISH LANGUAGE

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### Summary

In this regard, Pinzón points out that the role of the advisor can be divided into stages: 1. Preparatory: in which the guidance teacher instructs the student in the sources and procedures of scientific methods, contemplates the mental direction of the future specialist. 2. Assistance: in which it persuades and helps, because it is assimilated to teacher training, it is forbidden to the researcher. 3. Orientation: in which the teacher raises personal opinions based on knowledge, offers information and helps to verify it. 4. Direction: in which the teacher prospects a mental panorama with ideas for diachronic work and takes the student step by step in the different topics of the work, it is the highest category in the educational field. 5. Motivation: the topic is less decisive here than the student's commitment to his tutor, as well as to training.

In both the undergraduate programs of the bachelor's degree in mathematics and the bachelor's degree in Spanish language of the Universidad del Atlántico, students must present a degree project in which they acquire competencies of construction and knowledge. However, the advice and instruction in the realization of these projects is due, in most cases, to a particular teacher called the advisor of the degree project. This advice includes epistemological, methodological and pedagogical guidance and training of the student until the construction or production of new knowledge. As Pinzón mentions, working directly with the counseling teacher allows new points of view to be offered, helps to control confusion and maximizes the development of the conceptual framework. The study of the role of the advisor at the Universidad del Atlántico, as a common denominator with other studies carried out in the national context, reveals the complexity of the role and the challenges faced by the advisor during the advisory process.

**Keywords-** process, complexity, methodological, mentions, training

### 1. INTRODUCTION

In this paper, the authors propose to analyze the daily practice of the AS of the teacher's Bachelor's Degree in Mathematics and Spanish Language through a theoretical and practical approach for the design and implementation of strategies that favor greater and better performance in the classroom. Based on the above, it is essential that the teacher in training recognizes that in these spaces of practice, the knowledge I have must be shared, but also be flexible and open to receiving contributions from the other actors in the space. In addition, it is important to strengthen my capacities not only to solve problematic situations, but also to contribute to the training of the colleague I advise. This implies assuming a reflective role, which leads me to approach teaching knowledge from practice and not from certain established "laws", typical of the state of pre-professional knowledge.



At present, initial teacher training (FIT) for graduates from different disciplines, which began in the mid-nineteenth century, has taken on a role of great challenge. However, in the training of the human being and, above all, in the role played by the teacher in his or her training, in this training the role of the teacher advisor (DA) has gained great relevance. Their task goes beyond simple accompaniment, especially if this process takes place in the spaces where the student is practicing. In this case, in the Bachelor's Degree in Mathematics and Spanish Language offered at the Study Center in Tétala, Jalisco, Mexico.

### **1.1. Context of initial teacher training in mathematics and Spanish language**

The work of the teacher in initial training requires close guidance from his or her advisor teacher at the school to carry out research accompaniment and argumentation plans that will lead the student to build his or her identity as a competent reflective teacher and researcher. Therefore, we recognize the advisory role of teachers who, in their initial training, are interested in guiding their students and accompanying them; This aspect justifies the day-to-day in schools around academic councils, line meetings with student mentors, among others, allows to assume the role of this teacher beyond their undergraduate training since the classroom knowledge of the institution is valued, which, in teaching practice, can cause more than one palliative and allow the transformation of these educational phenomena. if they are negative, they are pregnant for student learning.

According to the work carried out in the research group of Didactics of Mathematics and Societies of the institute created in honor of Professor Gregoria Castellano, within the mathematics groups there are teachers in initial training and, in Spanish, advisors. The curricular design of the training programs of the Universidad Santiago de Cali for each of the bachelor's degrees has been regulated by the Ministry of National Education, through resolutions 5016 of 2010 and 03061 of 2015. A large part of the universities, without distinction, have embraced the model of training trainers. The university's training school seeks through its design to guarantee the training of future teachers.

### **1.2. Importance of the teacher advisor in initial teacher training**

This is understood not only by the different theoretical orientations on Initial Teacher Training (FIT) that have developed different lines of work established throughout the research tradition in the field, but also by the instruments or policy documents that have recognized the relevance of the formative dimension of both the formative teaching work and one of its main purposes. In this sense, the concern for the qualitative improvement of training results is associated with the concern to know which are the factors or variables of the process that act as drivers and who the actors that contribute to it.

Atenas, Tapias, and Quesada (2010) agree that there is a lack of resources and previous experiences regarding the referents of Initial Teacher Training and initiatory curricular processes in the different contexts where they are developed. From the National Plan for Teacher Training Parainfo of 1957, initially the Higher Normal School (ENS) of 1958, the proposals of the State focused on the training of teachers who were in charge, preferably, of the basic levels of education. In the wake of these proposals, other initiatives of the Ministry of Education emerged, such as the Regional Teacher Training Consortia (now Development), whose establishments have traditionally been in charge of initial teacher training and which have been assigned to departments of education administration, such as the Councils of Rectors, according to the committee's historical analysis. The formative dimension of the teaching work implies the development of specific professional competencies that guide and direct the teaching task in the challenge of facing and solving the pedagogical problems that always arise in the classroom.

### **1.3. Objectives and structure of the work**

The idea of carrying out this work arises, in the first instance, from the interest of participating as members of a collaborative team to continue exploring the educational role of the advisor teacher in initial teacher training in two degrees such as Mathematics and Spanish Language, and in the second instance we want to contribute to initial teacher training and generate pedagogical ideas on how we can conceive or design the practice of counseling in training institutions. On this occasion we take up some ideas of the Platonic disciples, specifically from what Núñez calls "Plato's 'erechóric' thesis" to affirm that from the discussion of an object of knowledge, a series of concerns are raised that aim to define the role of the advisor teacher in the pedagogical daily of the training programs. both in the



university and in schools, and consequently, to deepen its effects on the professional development of teachers in training, PEIC.

Since 2016, in collaboration with this university, we have been developing a research strategy called "The role of the advisory teacher", to examine the impact of the educational work of this figure, which constitutes an innovation of its own in Colombia not only in the field of initial teacher training but also at the Latin American level. This research background involves the realization of three projects, two of them in the field of training graduates in Mathematics at the Medellín campus and one in the Bachelor's Degree in Spanish Language at the Bogotá campus of the UPN. Within the framework of this work, we propose to gather the results of two phases of this project related to the Bachelor's Degree in Mathematics and contribute to the research reflection on the subject in the initial teacher training of these two knowledges in this scenario as in others.

## 2. THEORETICAL FRAMEWORK

The training of future professionals allows us, university teachers, not only to transfer the accumulations of information obtained from educational theory or practice. It also allows us to contribute to the process of glimpsing personal profiles, attitudes, aptitudes, knowledge and values and to corroborate whether the processes developed in their university life have impacted their role as a professional future. Thinking about the similarity - in some aspects - of training and understanding ourselves as future professionals, leads to establishing and prioritizing ways of approaching the relationship with our students. A component of this assuming the function of teacher advisor, particularly of students in practical training, deserves special attention since it constitutes a relevant instance in the training of, in particular, future teachers and in which multiple activities inherent to the training of the latter can be implemented. For this reason, these lines investigate the actions of the teacher advisor to students of mathematics and the Spanish language, particularly in relation to the role that is generated with students in the training process carried out during the teaching practice of the IV level of the Bachelor's Degree in Mathematics and the Bachelor's Degree in Spanish Language at the University of Cordoba.

Training of future professionals: we have asked ourselves how to strengthen the link between theory and practice that the student must develop. The role played by the teacher in this task and how he or she performs, particularly the advisory teacher, since in Colombia there is no specific description of his or her work as enshrined in other countries. Thus, in contexts of practical training, elements related to planning, evaluation, the promotion of reflection and the establishment of a training relationship with the future professional or professionals in their charge are manifested.

### 2.1. Pedagogical theories and approaches in teacher training

2.1.1. Pedagogical theories and their influence on vocational training. The training process of the university teacher, like the school one, has been impregnated by the influence of the different pedagogical currents or pedagogical theories, which have been transformed and completed over the years. From theological approaches (pastoral training of teachers with social commitment), through technical, academic, professional and postgraduate training with the processes of specialization and professionalization, it is oriented towards a purpose: to meet the needs of the context. In pastoral formation, the purpose of formation is to establish the religious faith and ethics of their community, and to provide a social service in accordance with their beliefs.

The training of face-to-face teachers at the Universidad del Norte (UNorte) through the design and implementation of strategies and interventions to strengthen their pedagogical competencies as teachers in training for a bachelor's degree in mathematics and Spanish language is a novel process. This process is based on the recognition of the importance of the advisory teaching role in the training of future education professionals. It is these people with experience in the school environment who, through a work of accompaniment and reflection on practices, contribute to the pastoral formation of future professionals by applying the knowledge built on their discipline and teaching it. In addition, they complement the academic tutorial support provided through the Department of Education in the development of writing, study and motivation skills towards learning.



## 2.2. Functions and competencies of the advisory teacher

For his part, Ugarte points out that the advisory teacher in the training process must have theoretical and instrumental competencies that allow him to effectively carry out his work, and values that allow him to move consciously between individual responsibility and collaboration, which allow him to ponder and promote interdisciplinarity, strengthen the valuation and production of knowledge of students and advise them to relate disciplinary knowledge with reality and ethical knowledge. As for theoretical and instrumental competencies, it is necessary for the advisory teacher to develop, in the first place, epistemological competencies that allow him or her to analyze the various conceptions of disciplinary knowledge and how different positions transform the forms and means of structuring it; in the same way, they must be able to critically evaluate the different research methodologies possible in a discipline, and from their transformative perspective of teaching. In addition to the above, the advisory teacher requires knowledge of the social, cultural and political context in the training in which he or she is inserted and more specifically in the disciplinary field that he or she guides. Thirdly, in order to transform their knowledge into mediators for the autonomous formation of the student, it is essential that they develop didactic skills and educational accompaniment.

Likewise, date, González, Vega and Alí mention that the teacher advisor performs roles such as care, guidance, the promotion of self-learning, affective closeness, instrumentation or categorization and confrontation, among others. In the first instance, care is the most important and characteristic function of counseling, it encompasses aspects such as loving help, unconditional acceptance of the student and knowledge about him, which generates trust in the advisor. Secondly, the authors establish the orientation, understood as the fact that the teacher guides the structure of learning, indicating the means, providing suggestions and clarifying points of the theory in order to facilitate learning.

## 2.3. Models of teacher support in initial training

This showed that the concepts of advice and accompaniment in the academic world are marked by the traditional individual and fragmented model; It also showed that the terms advice and accompaniment used by the informants are intertwined, equivocally merged or used interchangeably. At the University of Cundinamarca, it was detected in an ethnographic study carried out by Barreto and Chaparro (2012) that the supervision carried out by an advisory professor to a group of fifteen students of the foreign language, consisted of attending to the students who approached him spontaneously and in "innovative" spaces of their daily life such as the hemicycle to teaching; That places it, according to advisory scholars, in a coupe and reactor type supervision model rather than a guiding one.

In a qualitative study carried out in three Colombian universities, Fonseca (2003) found that the advisory practices followed by 52 advisory professors conformed to two models: one referred to follow-up practices by a professor closely linked to a selected student, who maintain frequent contact through individual counseling; The other model, called "accompaniment" by the advisors, referred to the fact that the professors who were the leaders of a course assumed the responsibility of meeting and evaluating 10 or 5 students whose names they received from sources other than the group of advisors, and whose contact was also individual. Fonseca evidenced practices of fragmented accompaniment with different agents linked to the student's training, including personal or workshop, professional or research, and curricular or academic training.

## 3. THE TEACHER ADVISOR IN INITIAL TEACHER TRAINING IN MATHEMATICS

The reason why it is necessary to reflect on the role of the teacher advisor in the process of training mathematics teachers, currently as a profession, is an instance to improve the quality of mathematics training. It represents an option to reconcile the preparation of the future mathematics teacher in the reflection on practical and concrete aspects of teaching. This is done within the framework of previously designed practices. On the other hand, in the context of professional training, the teacher advisor appears as a guide for the future teacher in topics that have to do with the discipline or with the realization of pedagogical practice. Finally, in this environment of mathematics teacher training,



new proposals are emerging and gaining strength that must assume a different form of relationship between the advisor teacher and the future teacher.

Taking into account that, although in most universities there are continuities from which teacher training is led and managed, these are usually very weak when compared to the levels that are being consolidated to develop undergraduate teaching.

One of the missions of universities, educational institutions and their respective vocational schools is the role they play in initial teacher training. In this regard, higher education institutions have made important commitments to teacher training at the preschool, primary and secondary levels.

### **3.1. Profile and competencies of the mathematics advisor teacher**

With the analysis of this advisory function, the interest arises to inquire about the training of this educational actor and how their action influences the improvement of the field in which they work; since the performance of the DA depends on their training, experience and an effective system of monitoring and professional development and particularly in the field of mathematics; competencies that allow teachers to be strengthened in the domain of didactic knowledge, favoring school improvement actions.

According to the Colombian Teacher Code of Ethics, the following competencies are recognized for area teachers: - Design training proposals in mathematics. - Intervene in a differentiated way in the groups where there is a greater demand for reinforcement. - Through accompaniment, get the teacher to strengthen autonomous work in their students.

The mathematical counselor in his or her work is the mediator between the educational processes of teaching and learning and their actors, to intervene in the design, management and evaluation in motion. Generically, he works complementarily with the other tutors. The competencies they develop are described depending on their functions.

#### **3.1. Profile and competencies of the mathematics advisor teacher**

To analyze the training of the teacher advisor (DA) of practice in institutions, Bacal suggests making explicit the profile and competencies of the same, as this guides the training of this actor and provides elements to assign responsibility to basic and secondary education establishments when necessary. The profiles and competencies proposed by various authors are presented below.

### **3.2. Strategies for accompaniment and guidance in initial undergraduate training in mathematics**

In order to meet the proposed objective in accompaniment strategies, the spaces and instances of reception and guidance that should be promoted are defined, so that students in training can receive the necessary support in their training process. It is in the School of Mathematics, and in the annual Pedagogical Marathon of the University, the space in which the program seeks to share, with students, experiences of Bachelors in Mathematics who work as teachers in our country, as well as other topics such as evaluation. To this end, the program administers, in limited spaces of time, conferences, talks and workshops of various kinds, and links students of the higher cycles and teachers of the same in the direction of these workshops, through the degree seminars, to provide more direct and concrete accompaniment and guidance, on how to work on special topics, according to vignettes and examples of practical work.

The Bachelor's Degree in Mathematics program at the University of Antioquia seeks to train professionals for basic and secondary education with a solid background in disciplinary, didactic, and pedagogical mathematics. The academic community of the program has understood that the teacher training work is not reduced to the theoretical, didactic and pedagogical training that is provided in the classroom (or training). In addition, it is required that these teachers in training "join the community that has the work... and continue to be trained, not only in the theoretical and disciplinary aspects, but also in the professional work practices that other educators are already creating", hence the importance of the figure of the teacher advisor. In the Bachelor's Degree in Mathematics program, it is considered essential that the advisor teacher comes to understand the complexity of the classroom and the challenges that the professional teaching work entails, knowing and recognizing the challenges and needs that the student faces in their training process, and acting as a facilitator, guide, motivator and counselor throughout their training.





#### 4. THE TEACHER ADVISOR IN THE INITIAL TEACHER TRAINING OF THE SPANISH LANGUAGE

The language teacher has knowledge that must be observed. The first of these is produced by habits and skills. This language can be the mother tongue (L1) or the second language (L2). The second of these is the study and observation of learning strategies. This teacher can advise on the good heteroparadoxical functioning of the learner, or direct him to invent and organize them in a kind of personal manual. We think that without a doubt the role of advisor extends over the previous ones but in no case does it replace it. The figure below lists each of the teaching functions (prescriptive and emulative teaching in all subjects) according to Gilles in 1986.

We can define that teaching and the training process that revolves around it has implied over time various modes of teaching, known as: Subject-based model, in which the training of future graduates in each of the subjects that make up their academic curriculum is contemplated. Little taken into account by some educational training programs. Initiatory model, also known as the paradigm of infection, means that the teacher disseminates his or her knowledge by making the student - the initiate - a depository of knowledge that he or she did not have before. There is only one core of superior knowledge to which the student aspires. A transmissionist model, which is based on the fact that knowledge is delivered, closed and finished by those who know to those who do not know.

##### 4.1. Profile and competencies of the Spanish language advisor teacher

Initial training will be enriched if the teacher advisor offers, in a creative way, significant scenarios that allow future teachers to assume critical attitudes in the face of the historical, social and cultural realities in which they work. Hence, the advisory teacher must also be a researcher who designs activities corresponding to the study of history, cultures, the use of language and national and international literatures; and grammatical concepts that allow students of the Spanish language to make inferences and generalizations in particular contexts using systematized knowledge in the grammatical field and in the other fields of linguistic knowledge. Such learning, being properly in the disciplinary domain, offers valuable symbolic capital for teaching performance.

The tutor who works in the initial training of graduates in the Spanish language must have solid academic knowledge specific to their discipline, mainly in the fields of general linguistics (grammar, phonetics and phonology, morphology), applied linguistics, the history of the Spanish language, as well as the Hispanic literatures and cultures in which they work. since their role is to design strategies to accompany future teachers in the appropriation of the concepts, theories and methodologies associated with the linguistic sciences. When this task is carried out rigorously, it allows undergraduate students to think critically and systematically about their discipline, as opposed to falling into the uncritical reproduction of previously acquired knowledge.

##### 4.2. Accompaniment and guidance strategies in initial undergraduate training in Spanish language

Thus defined the meaning of the socio-affective aspect, that is, how I affect others and how I allow others to affect each other; as I influence the mood of the other, as I suffer for the other and as I leave everything in the hands of the Valencia of my pupils, it would be excellent if through language the surrounding reality acted that directly influences the processes, intelligence, affectivity and communication.

From this aspect, and because language is the medium that communicates all conceptual and procedural knowledge between person and person, it would be that through the word, what the teacher says, what the teachers say, a training plan is structured for something as important as the Spanish language, totally linked to the areas of language by developing their linguistic competence from what is written and the speech of the student.

According to the School of Human Development, we must understand and understand each other. The first is the cognitive aspect, that is, rational, reflective, critical, conceptualizing; the second is the aspect of feelings and emotions expressed in everyday language.

The graduate in Spanish language trains students from the teaching process. She is in primary, secondary and middle school, and through her chair she projects the mother tongue, forging the Castilian culture as a fundamental pillar of the processes of globalization and communication. For this reason, it is responsible for the training of the reader, the writer, the speaker and the listener, due to its importance in the social and intellectual development of the student.



## 5. COMPARISON AND CONCLUSIONS

It should be noted that the complexity of the knowledge that is projected towards the training of the teaching career, permanent teacher training, classroom productions, etc. already shows a wide development; however, at a practical level, there is a tendency to fall back on pragmatics without always going beyond engineering knowledge, never independently of it, leaving the complex processes of teacher training and practice on the margins of the complex life processes of the teaching subjects. Regarding the orientation for production in practice, the group of research professors consults more with a view to validating practices than to transgress or deepen understanding, the transposition pointed out by Schreber being mechanical and hegemonic. With regard to the evaluation of the training offer, there are common academic practices such as: assignment of bibliography and selection of units according to reader profile; exploitation of the Mori by level or by subject, but without further analysis; lack of acceptance of what the didactic document is and emphasis on trivial knowledge over the critical problems of the disciplines and their didactics.

For this section, the meaning of the inference that was drawn was twofold. On the one hand, it was noted that components such as evaluation and educational research emerge with greater weight in the group of students in training. To this is added a greater consideration of the sociocultural conditions in which the didactic problems are situated, evidencing, according to the group, a certain degree of idealization and ignorance of the problems encountered in the application of innovations and educational research with the greater complexity with which they occur in some specific contexts of the school. At the level of the interface between thought and intervention, advances are reflected in the tools of inquiry for the professional task, although in practice students tend to stick to the knowledge that the units have proposed as "truths", reducing the imbrication of the different facets of the institutions on which the teacher's decisions are framed.

### 5.1. Similarities and differences in the role of the advisory teacher in both degrees

One aspect that was evident as different is the field of training in the areas and in the practice of the advisory teachers, since there are different routes to be able to work as an educator. The faculties of science and education of the I.P. have an area of training in science, which contains specifically mathematical courses, especially geometry, which are sufficient to be able to finish the doctoral studies in mathematics. They consider that secondary school advisory teachers, in addition to rigorous training in mathematical content, must have a solid training in the educational field. That is why 60% of the training aimed at them focuses on subjects related to education and that are taught both in the faculty of sciences (Faculty of Securitization) and in the Faculty of Education.

The advisory teacher in both degrees has an important role in the initial training of the undergraduate and this role begins from admission to academic graduation depending on the program. In both degrees, the training is induced by the advisory teacher, who is in charge of developing the activities and knowledge that the student requires to be a graduate in mathematics or Spanish language. Another aspect that was evidenced as similar is the quality of the advisory teachers and the institution. The advisory teacher, in the same way, is in charge of the training of his students. It also trains itself, which is why in both institutions there are activities, coexistences and continuous training for teachers and advisory teachers, in order to be at the forefront of research and best practices to provide their students with a better training process.

### 5.2. Impact of the Teacher Advisor on Initial Teacher Training

Contrary to what happened in the old curricula, in which the non-advisory teacher had the position of leader and the advisory teacher of being an outsourced supreme, which resulted in a risky inhibitor of mobilizing mobilization, the work of the advisory teachers of specific areas demonstrates time and again that by assuming generative positions and pointing out relevant and possible directions, it ends up being a clear stimulant for the creativity and investigative spirit of the students. The results articulate the persistence of a mismatch between the previous and the researched assumed by subjects with a clear investigative spirit and the scarce potentiation of concomitant positives in which the model of accompaniment and research is disseminated, why it is done and where everything of 'desempique' and 'cuadrillas' happens. And so, for example, the generation of new conjectures is

limited and the articulation of the knowledge and knowledge that underlie the different modes of proliferating investigative and scientific transits that could face them is scarce.

In the collection of information to support the intersubjective and objective categories of the initial teacher training of teachers of mathematics and language degrees in the LIAME and the PEAf, 10 teaching advisors were interviewed, some from the mathematics degree and others from the Spanish language degree, this in order to evidence the results in the work and the training opportunity in these two degrees. for mobilization towards the work of teachers. Below, the appreciation and experience lived by each of them.

### 5.3. Final conclusions and recommendations for future research

On the other hand, our partial conclusions about the work in specific academic spaces lead us to point out that in mathematics, although practices are being managed in favor of teacher training with a teaching orientation, there is a need to review the concept of onomasiological training, as the latter is carried out from a certain epistemological and pedagogical perspective. In the same way, the need to continue exploring other types of strategies within the classroom with evolutionary contributions by students in the face of the theoretical is recognized. In marked cases, there is evidence of a lack of direct contact with teaching that allows students to orient themselves on what the formal studies they are studying and their previous conceptions of specific mathematical knowledge propose. In the Spanish language, there is a lack of educational components at the initial training level that would allow future teachers to teach the language.

In the different spaces carried out in the development of the research, the role of the advisory teacher is fundamental in the initial training in mathematics and Spanish language. The students express the importance of the guidance they should receive, as well as specific training strategies (tutorials: collective, personalized, group) that allow their comprehensive training, as well as the search for different sources of information for their professional development. These include the collaboration of students in training in pedagogical practice, the strengthening of training in the initiation and development of projects and the strengthening of capacities and skills both in classroom work and in performance with other educational entities.

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