

The Alternative Curricular Proposals Obtained as Process of Plan, Develop and Critically Analyze the Initial Curricular Proposal of Reference through Action-Research in Educational Institutions in Cali, Colombia

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Abstract

This paper presents a proposal for curricular research in the framework of action research, which aims to show how teachers from three high schools in the city of Cali, Colombia, autonomously construct an alternative curriculum for teaching natural sciences. The proposal is obtained as a result of prior planning, monitoring and critical evaluation of it, during curriculum development in-a-period-of-three-years.

1. Introduction

The educational problem that arises is that the teachers in Colombia come from the educative practice that since 1849 until 1994 has been characterized by conceptual pedagogical and scientific dependency of educational programs provided by the government in order to be implemented in to classroom [5].

The general law of education of 1994 [13], the curricular guidelines in natural science education and environmental education and the basic standards of competence of natural science recognized the intellectual autonomy of the teachers in their professional practice in education in science because they are responsible of their own educative practices [2]. But the teachers continue doing their tasks within the cultural context where they are conceived as the executors of a curricular proposal that has been previously elaborated by others, having few experience in the development of curricular proposals in experimental science as an expression of their own professional autonomy in educative institutions and classrooms. Hence, the research question is: How teachers assume autonomously the construction of an Alternative Curriculum proposal in Natural Sciences and environmental

education based on the research of their teaching practice in the educative context of the Cali city?

This research question requires an explicit concept from education and curriculum in a social context. With this purpose society is conceived as an organization of human beings with particular interests and it is responsible for the representation of their internal structures to make sure the knowledge, values and culture are there for future generations. The representation becomes the central problem of a society and it is carried out by two mechanisms that emerge in response to the situation in question: socialization as learning of general social practices by participating in them and education as a special case of socialization [4] [14]. In both cases, the relationship between theory and practice, and the relationship between education and society [3], the curriculum plays a major role, in the first case establishing a bridge between the theoretical principles of an educational project and its effective translation into society in the context of permanent criticism and in the second one as a problem of representation of internal structures of a society in future generations. In this sense, the curriculum is not what it is anticipated as traditionally educational proposes that will be done at school before being actually done. It is what actually is happening at school from the educational activities planned, the empirical study of its process and their fully justified completion. That is, the curriculum as a field of research covers three areas: planned project, empirical (processed) study and justification (obtained) [6] [7]. What the curricular research proposal in Natural Sciences tends to do is to establish the curriculum that the teacher obtains as a result of planning and processing (developing) through teaching, learning and assessing science in the classroom.

The main aspect, in the first case, is to know the structure of the discipline, by selecting,

teaching, learning and assessing the contents of natural sciences. The second examines and evaluates the progress of students and teachers, and the third implies the analysis of what the students learn, but subject to critical examination.

In relation with that, the curriculum is understood as the process by which the teacher organizes, designs, implements, and documents the relationship between common knowledge of students and school knowledge of the teacher in the classroom with an educational purpose in the professions training

2. An epistemological basis

A proposal for curriculum research as proposed is an alternative curriculum to the traditional way of doing curriculum development with objectives previously established, that are expected to achieve before their development process [8]. In the traditional curriculum the teacher is the repository of a predetermined plan developed by "experts", which must follow step by step regardless of the conditions in which teaching practice is inscribed. In this proposal, the teacher is the protagonist in creating his/her own curriculum. That is, the curriculum as a research object is not at the beginning but to the end of the educational process. These aspects which help to explain why the curriculum is a process, a development to achieve and is not a goal to achieve. For that reason, the curriculum is conceived as planned, then processed and it is obtained finally [10][12] [6]

Curricular alternative proposals are based on the contributions of critical pedagogy founded and developed by authors such as Stenhouse [7], Elliot [1], Carr, Kemis and others [9]. Critical pedagogy arises from considering the relevant role played by theory and research in the training of educators and as a result of this consideration, the main constraint on its professionalism is the lack of professional autonomy, both collective level as well as individuals. To achieve this autonomy is necessary for the educator to build pedagogical theory taking into consideration critical reflection on own their teaching practice and curriculum.

In other words, critical pedagogy is a process of reflection that requires the participation, researching teachers in the social processes carried out through teaching, learning and assessment in the classroom.

This entire means that the role of teachers in the classroom is a researcher teacher and in the school and therefore in society be a member of a critical community of educators and researchers.

Hence, to integrate teaching and research is a structural element of the professional practice of teaching. Here, teachers are the most important to the educational and curricular process, because to them it corresponds to dialectically conceptualize the educative theory that transforms curricular practice in the classroom.

Taking education and curriculum from this perspective means putting the daily work of teacher self-reflexive critical review systematic. To this end not only to prepare carefully do their homework but deliberately to keep under review the consequences of the practice and the theory and build on that analysis. In short, think critically about the limitations of the situation and the practical possibilities of action and thought. But a critical self-reflection cannot be done without a method for performing and a conceptual reference point for discussion, analysis and reconstruction of permanent private speech teacher. In the first case we refer to action-research and in the second case the critical community of educators and educational-researchers.

Action research (IA) is interested in the practical problems faced by teachers in classrooms and in finding solutions for them. It involves the professional development of teachers, and the idea of teachers as researchers has been expanded to include critical theory in the analysis of conditions in schools and in the use of research in order to initiate and promote school changes.

Finally, there is another theoretical consideration behind this research question: to assume that the teaching, learning and evaluation science in school is a matter of researching in the field of teaching. In this sense when you are teaching a subject, means that, you are doing a research proposal, because you put forward a hypothesis that the student will be able to learn the subject that you teach, but the teacher do not know it before doing the teaching performance, but it is only possible to know it after the class. In the previous context it is understood the need of thinking a curricular proposal that allows improving the quality of education in the participating educational institutions. In this sense the proposal proposes as general purpose: the construction of an alternative curriculum proposals that has been planned, developed, implemented, evaluated, and systematized by teachers under the model of action-research in public institutions of the city Santiago de Cali, focusing on improving the quality of education This general purpose allows to develop some specialized purposes in order to design, and implement a curricular proposal with educational

elements, pedagogical, didactic and research for their development, monitoring and evaluation in the educational institutions in the context of an educational scientific culture,- such-as:

- Development of a conceptual framework for curriculum constructing.
- The development of the initial curriculum proposal of reference for each school.
- Implementation of curriculum proposals of reference.
- Monitoring and evaluation of initial curriculum proposals of reference
- The curricular proposal obtained by each school.
- Socialization of the curricular proposal of each Institution.

3. Methodology

The solution to the question research means that the development of curricular knowledge in educational institutions is an own construction of the subjects (teachers and students and community) involved in this process and therefore is derived- as-research-hypothesis-that-it-will-succeed only- when-this-happens.

In this sense, research- action is the method that allows their practitioners (teachers, researchers and others) reflect on their own educational practice, understanding of these practices and situations that are practiced in order to improve them, relate, and a growing interest to the large circle of those affected by them. The focus of the practice of this method is the problem solving taking into account their different educational actions, such as: the participating institutions, the autonomous design of a curriculum, the plan of action defined for solving the problem, the curriculum development itself, the collective thinking of educational knowledge and curriculum and specific groups for elaborating collective of the educative knowledge [11].

All such educational activities are included in curriculum development for each of the participating schools. For this project, curriculum development unfolds its educational activities throughout all phases of their action plan. The action plan and the phases and corresponding activities are:

3.1. Participants

In the project participated seven educational institutions including each one of them with

teachers of natural sciences, the student's representation, parents, academic coordinators and university researchers and the principal.

3.2. The research groups

The research groups are made up of science teachers from each participating institution and university professors. The purpose of these groups is to organize, manage and implement, evaluate and investigate the curriculum-development-of-the-proposal taking as reference of the activities previously defined in the action plan of research.

3.3. The action plan

This one contains all the educational activities with the aim of developing alternative curriculum proposal obtained by each school. In this case, the totalities of these actions are included in educational curriculum development conducted in these schools. Curriculum development as such includes the organization, implementation and evaluation of all scientific education activities in order to prepare educatively in developing an alternative curriculum constructed autonomously from an initial curricular proposal of reference.

From there, the general purpose of this research project is: constructing an alternative curriculum proposal designed, implemented, evaluated and systematized by teachers in public institutions in Cali. But a curriculum like the one posed in the general purpose of the project requires to be considered in the previous curriculum framework of reference, which assumes the curriculum as a planned project, a curriculum developed, and a curriculum obtained.

The action plan has four tasks: 1. to design to prepare teachers in curriculum theory, in order to build a conceptual framework for the development of this research. This strategy was the development of a workshop classes for each of the following topics:

Approach a research problem in each school, Study of the social context of the city, the institution, the teacher and student, The analysis of science education and environmental education of the school in the light of government policies, the theory of knowledge in the teaching of science, the meaning of science education, theories of education to interpret the activity educative in classroom, the nature of science, to select and organizing the scientific educational knowledge for teaching in school, the conceptual change in scientific knowledge and its relation with conceptual change in school, models of

pedagogy for science education, the theories of learning, scientific educational activity in classroom, didactic models to relate teaching - learning and assessment experimental science, how to integrate scientific knowledge, society and technology, how to research in science education, the development of the initial curriculum proposal of reference.

2. Planning, the curriculum proposal of reference for each institution. 3. developing the curriculum proposal of reference for each institution. 4 Obtaining the curriculum proposal of each institution and 5 to socialize and to systematize of the proposed curriculum of each institution

4. Results

Based on the action plan, the first task realized was the educational training program, developed through class - workshops generated the educational problem that articulates the curriculum criteria for the construction of the initial curricular proposal and the curricular alternative proposal. The analysis of this problem under the light of the previous epistemological base gave the curricular criteria to build the curricular structure for each proposal in school. In this sense, the initial and alternative curricular proposals have the same curricular structure, that is:

0. Posing the research curricular problem in each of educational institutions, and whose answer guides the development of the next curricular criteria. This criterion means that each institution within framework of this piece of research must posing their own research problem and question. In synthesis each institution must solve two points: first the problem that pretends to solve the curricular proposal in natural science and environmental education and second how to solve the research problem previously mentioned.

1. Where do we live and who are we?

It refers to the social-economic and educative context of the public institutions of the city where the alternative curricular proposal is going to be constructed by the teachers. From what was said, it is necessary to know the features of the city, of the institution and the teachers and students in order to know where do we live and who are we. In relation with this, we need to know the profile of the students and the teachers and the curricular structure of the institutions.

2. What do conditions established by the state curriculum guide institutional pedagogical practice of teachers in the classroom?

It refers to all of the educative practices, pedagogical, and didactics and the knowledge of the disciplines established by the state in order to be put them in practices by the teachers in their educative institutions.

These are collected by the political constitution of 1991, the general law of education of 1994, the guidelines of natural sciences and environmental education, social sciences, and mathematics; the national basic standards of competences in sciences, mathematics, social sciences, and language and others and the national and international assessments [17]

3. What is the current state of education institutions in relationship to the previous conditions?

This curricular criterion has as purpose to analyze the actual state of the educative institutions participant in the project. It means to analyze into the institutions the educative project institutional, the plan of area, the plan of studies, and the plan of classroom looking for the identification of the problems, their advantages and disadvantages in relationships with the curricular structure in order to elaborate an improvement plan in educational institutions. The plan of improvement has as purpose to know the strong points and weak of the actual proposal and the projects of change in the institution looking for its quality of their education.

4. What is the nature of science?

According to the conception of nature of science that the teachers have, then they assume their educative practice in class. Since that, the necessity that teachers reflect and construct a conception about nature of science they teach in the class with the purpose of students can construct appropriate ideas of science.

The nature of science it is assume as conception of science that reflects about four aspects:1, the structure of science, it refers to how the teachers assume what is science, and how they materialize it in the curricular structure; 2, the development of scientific activity, the science as human activity it looks for explain the phenomena of natural world by means of methods, theories, process and values; 3, the characteristics of scientific community, suggested certain conceptual interest that demands to resolve it in a

conceptual field social, economic and cultural of reference and 4, the relations between science, technology and society, the productions of scientific knowledge generate impact and transformation upon the development and practices of society and technology and science.[15]

5. What educational theories guide the teaching-learning- evaluation of science?

The central problem that science education poses epistemologically in class is: how do teach and learn and evaluated significantly sciences from the knowledge of teacher and the knowledge of students taking as reference the scientific knowledge in school?

The answer to this question originates different interpretations for its curricular materialization in the classroom. In this regard there are three positions for its importance in educational curriculum development and school culture: Positivist Pedagogical Theory (PET), Interpretative Pedagogical Theory (TEI), Critical Pedagogical Theory (ECT) [16].

6. Why teach science in the classroom?

It looks for promote the reflection about the importance of science for the educative formation of the citizen and from that to derive the different goals for teaching science in class. Theoretically, this question has received different responses. Since to assume the same as scientific literacy, the public understanding of science until the educative formation of cultural scientific based on sciences and that pretends an interrelationship-between-sciences, technology and society and environment. And others perspectives as training of professions and to ingress to the superior education.

7. What science is taught in the classroom?

Biology, chemistry, physics, environmental sciences, astronomy, such as scientists produce cannot be assumed directly by students, because they are designed for another purpose, to solve problems in nature and not problems in school therefore, they claim to be educationally transformed for its corresponding teaching, learning and assessment. The subjects participating in curriculum development as practical field of education, they are responsible educatively of transforming the role of science to their teaching, learning and assessment in class. Particularly when we think about curriculum design of disciplines we refer to the organization

of scientific knowledge for educational purposes. The curriculum designed from the disciplines, as mentioned above, has double purpose: the first is to place the discipline as object ready for teaching and the second is to make the discipline an object of teaching. In the first case, it refers what means to know chemistry, biology or physics and in the second is to assume that the disciplines, such as, are directly object of teaching. That is, the fundamental idea behind this concept is to recognize that each discipline can be taught, from consider as an educational value its content, experimental processes and its social and attitudinal values generated since within [18]

8. How teachers teach science? (model pedagogy and model didactics)

The strong idea of the educative act of science education is to relate the knowledge of teacher and the knowledge of student in order to construct educational scientific knowledge in class. This idea can be developed in two moments strongly related in the time: the first as a consequence of the curricular proposal of the teacher conceived for its realization in class during a determined time. The development of this proposal includes three tasks: their planification (curriculum planned), their empirical process (curriculum developed) and the evaluation analysis (curriculum obtained). The second as a punctual case in each of the classes realized during the development of the proposal. These two moments are part of one only process upon the sequentiation, selecting and organization of the knowledge for teaching, learning and evaluation sciences in the programme of studies.

9. How students learn science? (theories of learning)

The student is recognized as the subject of learning and we assume him like that, because he plays an autonomous role in appropriation of the knowledge. In this sense the student acquires his own knowledge. When the student arrives to the school, he brings with him his own knowledge of science, it means, the common previous knowledge. The importance of this fact implies the application of this knowledge into the teaching, learning and evaluation of science in school. In the previous context, the teaching, learning and evaluation are related through the subject that participates in it with the purpose of construct scientific educative knowledge in school.

For this reason when it explain how student learn sciences, it is assumed that the students do this process in relation with the teaching and evaluation of teachers

Besides that, given the importance of knowing about educative theories that interpret the process of tracking, learning and evaluation in such way that we can recognize that each process of learning is different according to the educative theory applied in class.

In this sense, a teaching developed under the positive theory, puts the class's activity in teacher's hands, considering that students learn as result of the teacher's explanation without thinking that he intervenes in the process in an independent way.

In opposition to this point of view, from the interpretative theory and also the constructivist, from which derives that students learn by himself, although the teacher plays an important role in designing learning, promoting it, apply good environment in order to improve the autonomous of students for appropriating of knowledge.

10. What educational resources are used for teaching-learning-evaluation of science?

This criterion intended that the teacher beside to reflect on the what, why, and for what and how to teach the knowledge, also reflect upon the resources that allow to construct of this knowledge. This includes 1) background in teaching discipline, 2) the materials, resources and environment of institutionalized educational process (e.g., curricula, textbooks, school organization and funding of schools, and structure of the teaching profession) to develop educational content and achieve educational goals previously established 3) research on schooling, social organizations, the learning, teaching and development of humans and other socio-cultural phenomena influence the knowledge, also reflect on: the sources that allow you to build that knowledge the work of teachers, and 4) the wisdom that gives the practice itself (Shulman, 1986) 5) educational mediators between knowledge of teacher and students through performances, deepening, clarifying, integrate or replacing the explanations as appropriate, this relationship allows the understanding of knowledge. Example such as recaps, concept maps, conceptual frames, schemas, UV Gowin, graphics), to incorporate suggestions for activities,

literature searches, queries, questions, and will include information in different technological supports [19]

11. What is to evaluate, how it is evaluated and what is evaluated?

The evaluation implies a comparison between the educational goals and the results posing in learning. From there a simple question, but difficult to answer: How do we know when the teaching produce learning? The answer is through evaluation. The assessment allows us to know whether or not the teaching learning is achieved.

Conforms well, an epistemological triangle of quality education if the three elements converge in an educational training of scientific thought. What was mentioned means any punctual or ample process of knowledge is of quality, if the three mentioned elements are acting progressively inside of proposal of training teachers

The evaluation, point of reference in this part of the document localized in this context, shown several considerations in their practice in this country. An historical analysis of its conceptual development permit to find the following typology: evaluation by contents, evaluation by objectives, evaluation by process, evaluation by achievements, evaluation by competences.

In broad terms, the assessment may be understood as an educational process in three stages: first, the initial assessment (current state of knowledge prior to student teaching), second, the summative evaluation (cumulative records of individual evaluations) and third, formative assessment (educational interest to achieve educational purposes), although assumed to be independent, epistemologically the three are complementary in a single process.

Evaluation is usually assumed by the teacher as a process that measures the level of appropriation of knowledge that makes the student. However, this cannot be reduced only to that account because it would be situated solely on students' academic performance or achievement of the purposes of learning, though doubtless the summative evaluation of students is a source of data to "measure" quality of the institution, but not the only indicator. There are other indicators of the quality of education (and work in the classroom), such as the dropout rate and rotation professorial (a quality school is one to which

students and teachers come to taste), vocations scientific promoted, among others. In summary it is necessary to evaluate not only the results but the purposes, conditions, media, educational system and the different means of putting it into action.

Thus it is necessary to investigate how to determine the quality of education in the perspective view of the classroom and the school?, In turn inquire what, when, how, how to evaluate the act's own evaluative questions.

12. How to solve the problem of the proposal from action research

The research – action allows the collective construction of educative knowledge, pedagogical, didactics and curricular of the proposal, because assume the teacher as researcher of his own teaching.

This method allows to their practitioners (teachers, researchers, university researchers and others) reflect about own educative practices, the understanding of these practices and the situation in which they are put in practice with the purpose to improve them, relate, transform and the growing interest large circle of these affected by them.

The process of solution of the problem is explained through how the research action was the conceptual mediator, materialized in the research group involved in the process of solution of the research question. In this sense, action research had as its central theoretical framework: the construction, design and development of the curricular proposal elaborated autonomously by teachers of the different institutions, but assuming that curricular autonomy from each of the specific problems of each of the participating institutions.

4.1. A planned curriculum, developed curriculum and obtained curriculum

The second task of the action plan corresponds to the planned curriculum for each institution. In the context of the planned curriculum, the secondary school participating, established as research question: How to construct a curriculum that is of high quality, appropriate into the context of nature reserve, where the community appropriated a culture environmental with commitment and teacher takes advantage of the context of the rural area to do their teaching?

The third task of the action plan corresponds to the developed curriculum and it is the answer

to the above question according to the first curricular criterion in the context of assuming that the institution is located in a rural place of forest reserve and hence, the proposed curriculum must integrate it into their educational practice in order to preserve and solve environmental problems in the area. In rural place, a teacher works under the conception of New School, that is a curricular proposal developed in Colombia by the seventies, in response to the educational problems of elementary school children in rural schools. Given the lack of students per school year in the rural education, there emerges the need for a multigrade teacher, who simultaneously addressing several grades at once. A mean to achieve this is through the guidelines developed under the principles of active school (¹), which allows students to progress independently in the appropriation of knowledge and the teacher attends to children who can not read and write at the same time. The guidelines provide common curricular structure for all of the educational institutions based on three key moments: basic activities, practical activities, implementation activities, a teacher training through microcenters, managerial and administrative management in the promotion of student government, and a linkage with the community with the intention of recovering ancient knowledge to integrate them in to learning in children.

This curricular proposal has their own materials but there is no induction or support to enable new teachers faced with this modality, to know its methodological strategy.

This method is performed in two complementary varieties, one conventional, in which the natural science text is critical, because the proposal proposes and develops science curriculum of that the teacher teaches and the student learns, hence, the analysis of the texts makes evident as taught, is learned and assessed (curricular criteria 6, 7, 8,9)

This conventional model of New School, analyzed according to criteria 3, 4 and 5 shows that educational work is done under the foundations of positivist theory and corresponding model where teaching and learning are under the responsibility of the teacher and the student is considered as a subject passive, not connecting the knowledge acquired in school to their immediate social environment. This method is defined by National Education Ministry [5], the entity that organizes, plans, disseminates, and

¹ The active school proposed an active student in the classroom could work their own interests as a person and as a child

publish the curriculum proposal through the mentioned texts, but also are science texts that the teacher develops in class when it is applicable

The other variety of the emerging model of new school is done through the educational project, the student government, in which students preferably with the help of the teacher, parents of family, and local educational community, organize the 'planning of their teaching, learning and assessment and develop them simultaneously.

The Student Government is an organization operating of and for students, as a methodological strategy of the New School, considered a key instrument for socio-affective students. "School government is a system that facilitates the active participation of students in the management of various school activities, such as discipline, building maintenance, the organization of work areas inside and outside the classroom and cultural activities to be carried out during the school year. Students assume responsibility in a democratic way, the performance of certain functions and, under the guidance of the teacher, do their jobs. "Through their participation in student government, it is expected that students develop habits of responsibility, cooperative and democratic self-control and self-assessment will encourage partnership relationships and sense of belonging, is infused into the students' sense of justice, ethics, respect, cooperation and social participation. The student government is coordinated by the teacher and other educational authorities, operates with the support of parents, community and institutions and entities of the sidewalk. It has a president, a vice president and a secretary (all students), chosen by vote, in which only students may participate. For the operation of student government activities are organized through different committees which are given strategies work, who should design projects to boost its shares. Each institution sets according to their needs, requirements and resources committees to be organized.

The fourth task of the action plan corresponds to the obtained curriculum. During the 2009-2010 the school conceptualized the need to implement a different teaching model to give more dynamism to the pedagogical practices, to overcome some of the difficulties developed with the science texts, where their units of sciences are designed with activities basics, practices and application developed under conception of behaviorism ⁽²⁾

² The nation is working with educative theory of constructivism in their national standards of

where the teacher plays the main role in teaching and learning through the science texts (guidelines of natural science)and taking curricular criteria that actually are abolished in the political educative of the country, such as: achievements; encourage students to develop skills to cope with different situations in everyday life not only in a rural school but in the city dweller.

It was decided to begin work on the model of "teaching for understanding" (EPC). Several ideas and questions are behind this model: a theory of understanding, what do I want students to understand? How do I know you understand it?, how do they know you understand it?

The first question has three components: 1, the key questions that guide a task raised to the work of the year, or a set of units articulating and making sense of all the issues. 2 the generative topics: these are issues, concepts, ideas that make the topic in question, 3 understanding goals, this focus the central aspects of topics considered. The second question refers to the actions carried out by the students to develop and demonstrated understanding that arises in the goals and the last questions refers to the evaluation of the answers to the performance of the students.

In relation with the theory, David Perkins[20] argues that understanding is the ability to think and act flexibly from what you know. That is, it includes information and is able to act on this knowledge. Sometimes it is thought the understanding and representation, image or mental model that people have, but others relate directly to the ability to act. For a better understanding of what is comprehension, Perkins gives an example, "First, to appreciate the understanding of a person at a particular time, ask him to do something to put at stake their understanding, explaining, solving a problem, building a argument, making a product. Second, what students respond not only shows your current level of understanding but it is likely to make them move forward in their thinking.

Since this allows us to recognize that in the process of teaching and learning the teacher and students use the knowledge, skills or competencies and understanding. Knowledge as we know belongs to the experience economic sociocultural and historical, scientific and technological capabilities, are understood as, skills, abilities, skills, and others, the understanding refers to the meaning we give to our learning.

learning (curricular guidelines of natural science, MEN 1998)

To generalize, we recognize the understanding through a flexible performance criterion. Understanding occurs when people can think and act flexibly with what you know. In other words, is the ability to use knowledge in new ways?

5. Conclusions

1 - The problem under investigation is to examine, how in the practice is given the passage of a unique curriculum defined by the state in a national context to a federal curriculum defined by each institution in its local context, particularly with reference to the research question in this Project: How teachers autonomously assume the construction of its own proposed alternative curriculum in natural sciences and environmental education in the city of Cali? But in each case materializing is the research question in the institutions. Hence, the specific question in the case of this institution (IELM) taken as initial reference for this article is: How to build a curriculum that is appropriate to the context where the community becomes an environmental culture of commitment and belonging environment and teachers take advantage of the context of the area to do their teaching?

This question analyzed in its curricular development shows its limitation in the preparation of students to act in any context, whether rural or urban life and it is in this case, where the teachers introduces, the teaching for understanding. This curricular decision is an affirmative answer to the research hypothesis of the project and is therefore the first conclusion, according to which the teacher obtains the curriculum as a result of autonomous planning and curriculum development, but when the teacher is not the author of his own curriculum planning, the curriculum obtained is not consistent with what was planned, nor developed.

2. On the other hand from the teacher's professional autonomy, emerges the curricular conceptual framework to build their own curricular proposals as planned, developed and obtained. This framework curricular is conceptual criteria that define the curriculum structure for each institution. These criteria are a consequence of solve the educational problem posed by each institution and are the basis for the second conclusion. In this sense, the constructed curriculum proposals have the same curricular structure previously mentioned in to the section of results.

The robustness of this first conclusion contrasts theoretical and practical when compared

to the first proposal of 1947 Tyler curriculum which establishes the basic fundamentals of the curriculum, as set out in the following sequence:

1. Purposes or objectives. What must the school achieve?
2. What learning experiences will be offered to achieve these purposes?
3. How do these learning experiences can be effectively organized to help provide continuity and sequence for integrating student and achieve what seems like an isolated learning experience?
4. How is it assessed the effectiveness of the learning experience with the use of systematic tests and other evidence of achieving goals?

The difference between the two approaches is remarkable. In the first, the learning objectives of Tyler do not emerges from the educational institution which is supposed to affect. In the second, the purposes of the teacher in the curriculum proposal that arise in educational institutions in Cali, originate from an educational problem that teachers want to solve, which is part of a social, political and institutional framework to tackle through action research in the classroom. One consequence of this is that education in the classroom is a matter of curriculum research and not curricular regulations.

Finally, the piece of research shows that the previous curricular structure is developed through of the educative activity of teachers and students in classroom. This activity is made of three concrete actions: 1, a curriculum planned, that responds to what is, the scientific educational activity done, which in the research proposal is evident in the approach of the initial reference curriculum proposal and its response to the curricular criteria established, 2, a curriculum developed refers to how is, the scientific educational activity done and is collected in the proposal with the evidences obtained, as a consequence of their implementation of the initial reference curricular proposal and 3, a curriculum obtained in response to why the scientific educational activity is done, after critically evaluating the developed curriculum and this action becomes the first action of the next educative activity in class.

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