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Educational research applied to educational approaches and to pedagogical knowledge Nuclei*

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Abstract

The purpose of this article is to make a deliberate presentation on the consistency of educational approaches and the nuclei of pedagogical knowledge in current educational problems. This with the intention of establishing the nature of the ideological demands, the policies that education receives and the characteristics of the pedagogical responses that an educational project offers to the structuring of a pedagogical model. The article was methodologically supported by an educational research in which there are two great challenges or challenges that must be overcome in the process of exploration: the classroom and its character to assume the production, distribution and circulation of contemporary knowledge; and the curricula and its extreme ideological approaches that prevent an adequate understanding of the pedagogical process of the new teacher. In conclusion, educational facts, such as values, meanings, intentions and beliefs are not directly observable, nor are they susceptible to experimentation, since in the educational field behavior must be contextualized, which makes it difficult to generalize as a part of the context.

Keywords: curriculum, educational approaches, educational research and nuclei of pedagogical knowledge.

Resumo

O objetivo deste artigo é fazer uma exposição deliberada sobre a consistência das abordagens educacionais e os núcleos do conhecimento pedagógico na atual problemática educacional, com a intenção de estabelecer a natureza das demandas ideológicas, as políticas que a educação recebe e as caraterísticas das respostas pedagógicas que um projeto educacional oferece à estruturação de um modelo pedagógico. O artigo baseia-se metodologicamente em uma pesquisa educacional em que há dois grandes desafios ou reptos que devem ser superados no processo de exploração: a sala de aula e o seu caráter para assumir a produção, distribuição e circulação do conhecimento contemporâneo; e os currículos e as suas abordagens ideológicas extremas que impedem uma compreensão adequada do processo pedagógico do novo professor; concluindo que os fatos educativos, tais como os valores, os significados, as intenções e as crenças não são diretamente observáveis, nem suscetíveis de experimentação, já que no campo educacional o comportamento deve ser contextualizado, o que dificulta sua generalização como uma parte isolada do contexto.

Palavras-chave: currículo, abordagens educacionais, pesquisa educacional, núcleos do conhecimento pedagógico.

Introduction

Whoever sows schools will reap men.

José Martí

This article highlights how the Colombian education system has been questioned for several decades as a result of the multiple economic, social and legal demands to which it is unable to respond, even in the academic field, due to the low quality of learning, as demonstrated in the PISA test, with our country occupying the last place among 44 that participated, nor less in relation to the other fields that integrate the person and society, due to the difficulty of forming highly competitive communities, capable of developing educational projects and achieving sustainable and sustainable development, both in human and economic terms.

It is there that educational research becomes one of the pedagogical processes to which the greatest amount of responsibility is assigned in relation to the low quality of traditional relative learning, both in theoretical knowledge and in practical knowledge. It is upon this element of knowledge that the main debate of the article is based:

> Throughout history, educational evaluation and research have been responsible for guaranteeing the academic quality achieved in the country's educational process, in addition to being close to the results and the promotion and certification processes of priority interest demanded by society and the scientific community of the 21st century (Passos, 2015 a: 12).

However, focusing attention on educational research and on the development of models related to contemporary society does not necessarily mean an increase in the quality of learning achieved by students, nor the achievement of better levels of quality of life, since it would not be possible to insert innovations in this educational factor without proposing profound transformations in basic components of the teaching-learning process, such as the curriculum, didactics, pedagogical relations, and research.

Nevertheless, the above would not be sufficient to generate innovations in the nuclei of pedagogical knowledge, if the fundamental demands such as the already hackneyed globalization and its tails and/or lags present in Colombian society, and the economic and social competitiveness generated from the free trade agreements established by the neoliberal policies of the Colombian state. In relation to the first aspect: Innovations in pedagogical models and educational research are one of the main causes for an educational project to remain in the duty to be or in a transposition of discourses that do not reach action (Suárez, 2002: 36).

This is due to the lack of structured theoretical references with which it is possible to propose pedagogical models in accordance with the demands of today's society and the conception of the person and the community. As for the second aspect mentioned, for an educational project to respond to globalization and competitiveness, it must be considered from every point of view: The interest in educating citizens with the capacity to exercise participatory democracy, and also how to participate in personal improvement and in local, regional and national development, assuming their life project as a personal commitment (p. 13).

For this reason, the interest of this article focuses on the role that educational research plays, both in pedagogical models and in the structure in which it is possible to form citizens capable of entering a globalized world with a different understanding of their social function, able to be productive and proactive in the economic field, but fundamentally to be competent in a society in which the human being has an identity as an actor, as a person and as a community, a society in which the quality of life is not only associated with economic factors, but with equity and impartiality as an articulated principle of any project of which he is a part.

It is evident under this assumption that although competitiveness and globalization are demands that condition the pedagogical responses offered by the Colombian State through an educational project, it is also important and necessary to consider that these alternative solutions must be structured in the perspective of forming citizens with the capacity to add value to their production on the basis of the civil/citizen ethics that must guide the educational project centered on the person and society. What, then, is the influence of educational research on its applicability to educational approaches and to the nuclei of pedagogical knowledge?

The intention of the present article is to find answers to the points of view of educational research and its applicability to educational approaches and to the nuclei of pedagogical knowledge. In Colombia, there are two factors that condition educational research and that require theoretical and conceptual support in order to analyze them in depth, as has been demanded by models that have prevailed up to now in confrontation with other options and in accordance with the ideological and political demands that civil society makes of education in order for it to be of quality. One of these factors is the classroom and the other is the curriculum.

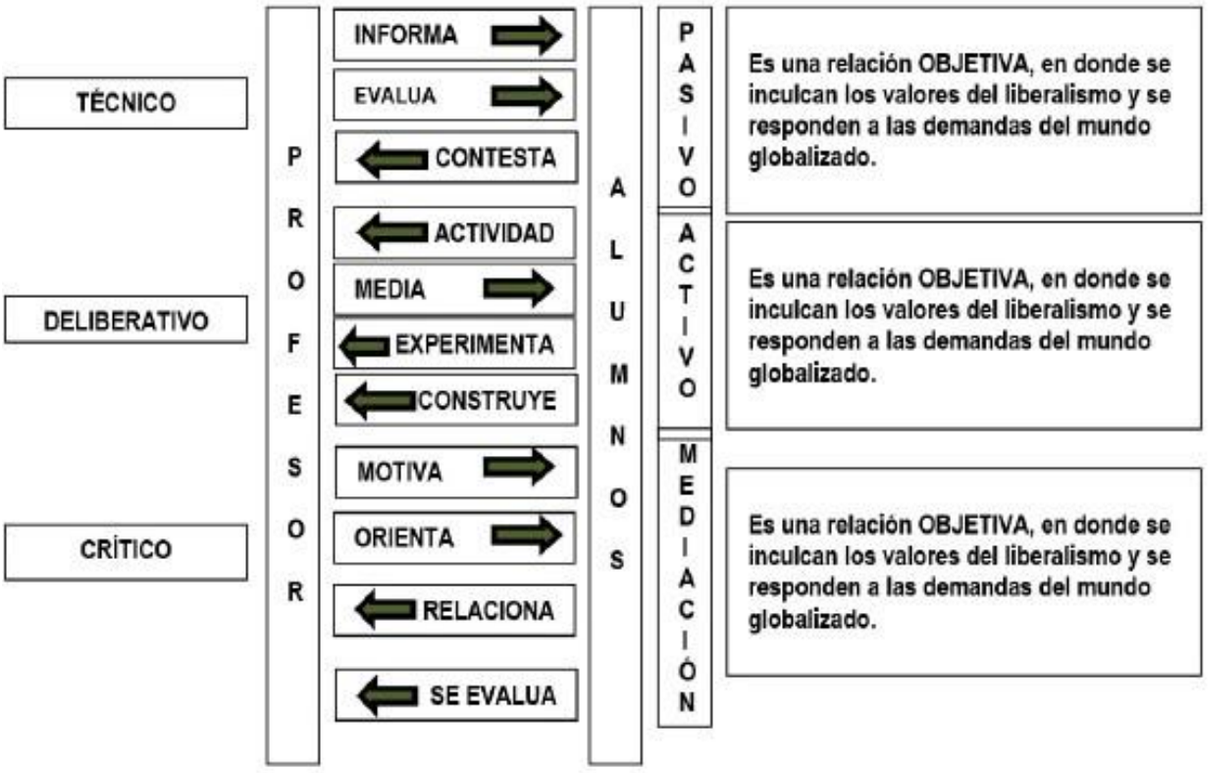
However, what is the classroom? For the traditional school and teacher, it is a closed space, delimited, enclosed and identified with the banking school, where there is no social-affective interaction between the teacher and the student. And for the non-traditional school and/or teacher, it is an open, empowered, virtual, interactive and socio-affective space between the teacher and the student, in which warm relations are established between the student and the educator. It is a relationship that starts from an acting nucleus, and it is necessary to delimit them, according to a pedagogical model conceived by the institution (see Figure 1).

Theoretical perspective

In this research article, it was considered pertinent to begin the bibliographical discourse from the definition and origins of Educational Research, since in the educational field, as in the rest of the sciences, this has become a fundamentally concrete activity, which is why educational research has been considered as the discipline that deals with questions and problems related to the nature, epistemology, methodology, aims and objectives within the framework of the progressive search for knowledge in the educational field (Errandonea, 2000) .

The origins of educational research date back to the end of the 19th century, when pedagogy adopted the theories of knowledge as a scientific methodology. (Passos, 2012: 16). This research, as an empirically based discipline, was initially called experimental pedagogy, and had its origins in a historical-social context in which the interest in consolidating education

Figure 1. Teacher-Student Relationship



Source: Pedro A. Suárez Ruiz, 2002.

on merely empirical supports is highlighted, incorporating the experimental method in the human sciences.

Buyse's (1949) studies point to three main influences on experimental pedagogy: the reigning philosophical thought of the nineteenth century, the emergence of scientific pedagogy, and the growth of experimental methodology. Research in education, as in all social sciences, has various characteristics that are related precisely to the specificity of the phenomena it studies. This is why Arnal, Del Rincón and Latorre (1994: 73) establish the following particularities of educational research in its relation to educational approaches and the nuclei of pedagogical knowledge:

- Due to their complexity, educational phenomena present a major epistemological impediment, since they interact with a diversity of variables that do not facilitate an objective, precise and accurate study, such as that carried out in the natural sciences.
- In educational research there is a diversity of paradigms, made up of assumptions, theoretical perspectives and methodologies that are difficult to agree upon and articulate.
- This type of research uses a variety of methodologies, since the characteristics of educational facts generate the instrumentation of multiple research methods and models.
- The multi-disciplinary nature of educational phenomena means that their study requires coordinated contributions from other disciplines, such as psychology, sociology and pedagogy, among others.
- The diversification of educational phenomena in time and space does not facilitate the process of generalization and the establishment of regularities to the phenomena studied, which makes the trajectory of the objectives set forth by the science of education more complex.
- The researcher, as in all social sciences, is part of the object of study being investigated, which means that he or she cannot remain neutral and unaware of the educational problems being investigated.

It is necessary to clarify that the concept of educational research does not have a defined and clear framework to delimit what is considered to be the discipline itself. This requires maintaining an open attitude towards its different modalities and making an effort to clarify (Ministry of National Education, 1989: 20). In the bibliographical journey of the article, there is a need to refer to the curriculum as the basis of educational research, if one wishes to make an approach to the problems studied. In this order of ideas, etymologically the concept comes from the singular designation of the Latin curriculum (in plural curricula).

This term represents the set of basic competencies, objectives, contents, methodological and assessment criteria that students must achieve at a given educational level (Díaz, 1985:45). In general, the curriculum responds to the questions of what to teach, how to teach, when to teach, and what, how and when to assess. The curriculum, in the sense of educational research is the design that makes it possible to plan academic activities; thus, through curricular construction, an educational institution shapes its conception of education (p. 45). The curriculum makes it possible to foresee the things that must be done in order to make possible the formation of students.

Today, the concept of curriculum does not refer exclusively to the formal structure of curricula; it refers to everything that is at stake in the classroom, in the school, as well as in educational approaches and in the nuclei of pedagogical knowledge. Therefore, the curriculum is the valid reason for formally organizing educational practice and research in areas of comprehensive education (see Figure 2). Philologically, the curriculum means a career. In its origins: The term curriculum was understood in a somewhat more restricted sense, since it was associated with what was to be taught in schools, making exclusive reference to the contents of the disciplines and the curriculum of a given subject (Posner, 1998:23).

According to educational research: The curriculum is a construction from pedagogical knowledge, in the process of which different sources of knowledge and know-how intercede. Among these sources we have: epistemological or disciplinary source, psycho-pedagogical source and the socio-cultural source (p. 25). The scientific basis of the curriculum was, among other things, the crisis of behaviorism in all its forms, by not responding in the first place to the requirements of the time, and in the second, to the error of developing an adventurous conception of human behavior,

underestimating thought to the conscious activity of the individual, which led to the formation of the cognitive paradigm.

This reduces the importance of educational research, since for the Ministry of National Education, the teaching-learning process is considered to be an exclusive goal of educational quality. In this sense, improvement projects that break down educational research are not taken into account, since it is more an effort of the elements that make up the social, economic, productive, educational and governmental sphere of the Colombian State, which is not focused on a serious research process. The above is not only what should contribute to the successful achievement of the plans presented by educational institutions.

Obviously, other elements are needed, such as the pedagogy of love as a teaching-learning tool and the application of the concepts of continuous improvement to achieve quality assurance, which in the long run is necessary to raise the educational level of all the country's educational institutions (Passos, 2014). From this perspective, there are several paradigms that fully explore how to achieve total or comprehensive education from its four fundamental characteristics:

a. Paying special attention to customer satisfaction.

b. To carry out a process of continuous improvement of management, as well as of the process.

c. Participation of all actors involved in the teaching-learning process.

d. Existence of a level of interpellation, which, from the point of view of educational research, links the productive and academic sectors, incorporating in that relationship the value of equity and new forms of evaluation and self-evaluation that guarantee in form and substance that the measures taken and executed are achieving the expected results.

In this theoretical journey, we cannot stop talking about the relationship between the nuclei of pedagogical knowledge and educational research. It is important to emphasize that the nuclei must be perceived as a dynamic process; therefore, any vision of the same static is unsuccessful in the sense of looking at it integrally. The nuclei of knowledge, according to Suárez (2002: 140) are categories delimited according to educational theories and approaches, which are taken as references for the pedagogical responses that an institution structures in the face of the ideological and political demands of the region and the nation, as well as according to the needs of students.

These categories are organized in a pedagogical model that can be based on a technical, practical or socio-critical approach, according to the understanding of the institution and the meaning of educational quality. In this sense, the elements of knowledge are nothing more than structures made up of pedagogical nuclei that are characterized according to the educational theory and the approach that sustains them. From this research, they should be understood as mental constructs that model the formation of the individual.

From the educational research in Colombia, the predominant pedagogical models have been inspired by the theories of the expository transmitter model of the unreflective pedagogy exposed by Comenio, Pestalozzi and Herbart (1976), authors who corresponded to a markedly capitalist society, with incipient industrialization, articulated to strong pre-capitalist lags. Hence its doctrinaire character. The type of educator in this system, typical of the Middle Ages, was the teacher who transmitted - exposed - cut out, with the lags of the instructor-apostle who was engaged in a doctrinant religious proselytism, due to the presence of Catholic pedagogy (De La Salle, 1952: 25).

It is a model surpassed by the active pedagogy of Decroly (1965) and Dewey (1967). This was done by training teachers, as is the case with teacher training colleges, as progressive and libertarian teachers in the 1930s to 1950s. In essence, this system has responded with flexible pedagogical models in whose fields of formative knowledge predominate: "The nuclei of basic and common pedagogical knowledge, complemented with those additionally established by each institution" (Decree 272 of 1998); that is, fields of formative knowledge of a theoretical and meta-theoretical nature.

There are four core areas of knowledge: educability, teachability; the historical and epistemological structure of pedagogy, and the social and educational realities and trends of institutions. The nuclei are expressed as subjects and continue to function as such in isolation. In other cases they are considered as integration around symbolic problems, or thematic nuclei addressed consciously, which is confused with interdisciplinarity.

As can be seen, these are not empirical problems of the daily life of educational centers, according to the level for which the teacher is trained, but expressed realities in which an educational institution is involved.

This is reinforced in the 20th century with Declory, Montessori, and Pavlov. In this period, the theory of knowledge takes boom with the scientific investigation generated from the cognitive dynamics, but the most significant advances have been derived from the study of Piaget (1978), who, verified, how the basic structures of thought are formed by means of the product of the action that the subject exerts on the world and the one that the world exerts on him. This theoretical conception coincides with the dialectic philosophical thesis, according to which conscience is not more than an ideal plane of man's action on the natural and social world.

It is these characters that force the structure of behavior or thought to be transformed to "fit". Thus, as a strategy, it is proposed to strengthen curricular flexibility, which is part of the set of constructive proposals that open a debate on new educational paradigms. This new educational proposal aims at the search for new knowledge, through the interaction between the cognitive structures present in the student and the new information that reaches him, in such a way that the new data are articulated coherently with the existing information, facilitating the subject who learns sense and meaning of things (Acosta, 2003: 18).

As can be seen, knowledge is built through the active and continuous restructuring of one's understanding and interpretation of the outside world. To this end, it is necessary that the educational process overcome the educator-educatee dichotomy, which is the result of the transformation of the power structures in society to educational relations. Everything indicates that the 21st century characterizes a globalized and institutionalized world with a neoliberal economy, high technology, cybernetics, open and integral knowledge, ICT and information flow; added to the above, poverty, crisis, backwardness and social marginality, which constitutes in itself a great challenge for the country, affecting notably the country's educational institutions.

This opens up a space for redesigning and/or redimensioning training processes in search of the quality, equity, coverage, suitability and professional ethics necessary to respond to the challenges that the contemporary world presents to education in terms of the acquisition of knowledge (learning), the formation of disciplinary knowledge (teaching), creation and innovation (educational research) and communication (transfer, circulation and socialization) that allow for the fundamental development of people.

Materials and methods

The article described the relationship between educational research and the nuclei of pedagogical knowledge with other events in the educational process, so it was necessary to collect data and specify the environment in which the study was conducted. The methodology that was carried out was oriented through the type of analytical-descriptive research, taking as a reference the paradigmatic reconciliation proposed by Cerda (2001), on the integration between the actors of reality (subject-object); the basis of the principle of consistency (unity within the variety of triangulation and convergence), finally, the dialectical unity as a mechanism to achieve the levels of a total research.

Obviously, the total research allowed the linking of the actors to the process of analysis, since it started from a project of institutional improvement, to the systematization and redesign of the curriculum of an educational institution, generating as a result the structuring of the curriculum, the projection of the mission, vision and philosophy according to the needs of the institution and the context; to the organization of the pedagogical model and finally, to the articulation of the educational research with the different disciplines that guide a higher education program.

The research was based on "field work", through direct observation, interviews and opinions expressed by 24 teachers and 250 students on educational research, curricular flexibility and its environment in student practices, and finally, on the nuclei of pedagogical knowledge, which required the organization of an interdisciplinary work team adjusted to the reality of educational assessment (Passos, 2015 b). Similarly, the research was based on the empirical-analytical paradigm, which maintains an objective and positivist vision of the educational reality: permanently seeking the generalization of results from representative samples of the population (Suarez, 2002).

It is an academic knowledge that this paradigm is based on the external manifestations of educational phenomena

which are the ones that count when choosing a research problem. Moreover, objectivity is one of the principal characteristics of this model. For this reason, all research procedures used in the article are publicly known, but at the same time, replicable and impartial by the researcher: "Empirical evidence assumes that research should be guided by the conviction obtained directly or indirectly from observation" (Briones, 1996: 62), which was established in the research, in the criterion of contrast or falsification of the hypothesis and scientific statements proposed.

Results

For the teachers surveyed, education research, whether quantitative or qualitative, encompasses all research related to the area, and within it is education research and educational research (Restrepo cited by Schanzer 2000). It should be clarified that education research is developed in the so-called sciences of education: sociology, economics, anthropology, psychology, philosophy, and comparative education. These, in some way, treat problems in the area of the relations of education with other subsystems, systems, and structures of the nation.

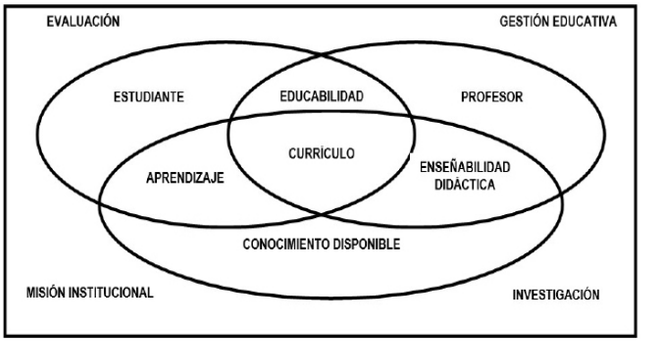
Educational research as a discipline deals with questions and problems concerning the nature, epistemology, methodology, aims and objectives within the framework of the progressive search for knowledge in the educational field (Sirvent, 1999: 49). For the population under study, educational research is born in a historical-social context in which the interest in strengthening education on empirical foundations and incorporating the experimental method in the human sciences is highlighted. It is precisely this kind of research that could be developed by the teachers of an institution of higher education in order to elaborate the pedagogical knowledge that emerges from their educational action.

On the other hand, research as the core of pedagogical knowledge is one of the factors in the development of education that greatly favors the quality of education, by making it more grounded and less empirical. The foundation of this would be epistemology based on the question: How do we know what we know? Among the epistemological antecedents of education research, we find that in the XV and XVI centuries reason dominated the development of the factual and formal sciences and of knowledge of the world through the senses.

The paradigm that guided this period was critical realism and logical positivism, with a quantitative approach to action, in which the subjects responsible for the research are usually unaware of the subject to be dealt with, since they only focus on numbers or on statistical data from an objective perspective.

It is a third-person relationship, where the researcher is alien to the event under study in order to act on it (manipulate and control it through objectification). Later, in the 19th, 20th and early 21st centuries, it was found that quantitative analysis was not adequate, or at least sufficient, to find the reality that man constructs; that human interaction cannot be static, but that it carries an implicit dynamic to value. This unique understanding of social fact in relation to the factual sciences required a new approach, the "qualitative" one. Thus, there is a transversal articulation between the nuclei of pedagogical knowledge and educational research (see Figure 2).

Figure 2. Articulation of the nuclei of educational knowledge



Source: Pedro A. Suárez Ruiz, 2002.

For the students surveyed, the methodological obstacles that educational research faces are notorious, but as Errandonea (2000) states, there are different research techniques, quantitative and qualitative, that have different capacities and restrictions. In the article, the paradigms of educational research were approached in accordance with the theories of Kuhn (1971), since they allowed for diverse uses and a plurality of meanings.

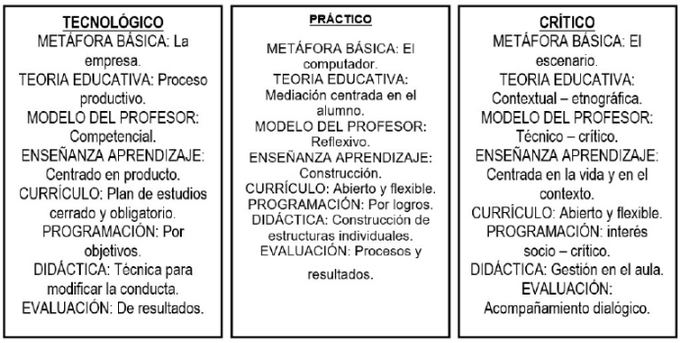
Discussion of results

The main discussion of the article revolved around the little or no importance that values, meanings, intentions, and beliefs have in the teaching-learning process carried out by teachers and students throughout the 21st century, since these are not observable and much less appropriate for experimentation. Good or bad Guba (1982) expressed that in the educational field, the behaviors of individuals should be contextualized, which in the end would make it difficult to generalize. However, the conditions in which educational research has developed, and the insufficiency of this research to rescue the pedagogical knowledge that emerges from educational action, make it necessary to establish serious differences between research in education, on education, and educational research.

It is necessary to clarify how the concept was understood and used in the development of this theme, since educational research has been determined by conflicts and paradigmatic debates, moving from outstandingly positivist approaches to more open and pluralistic ones. Different authors on the subject, such as Popkewitz, Koerting, Morin and De Miguel, among others, argue that three major paradigms should be distinguished in educational research: the positivist, the interpretative and the social-critical. Legendarily, educational research has followed the foundations and theoretical positions that emerged from the positivist current of authors such as Augusto Comte, John Stuart Mill and Emile Durkheim.

For the teachers and students interviewed, the hypothetical radicals on the subject studied are that the natural world has its own existence and that it is governed by laws that the researcher must discover objectively at all times with scientific procedures, if he or she wishes particularly to explain, predict and control them. These are phenomena proper to the educational context, whose knowledge is acquired on the basis of hypothetical-deductive methodology, which is scientifically valid for all sciences, being assumed to be legitimate for all time and place, and being for the researcher of an objective and factual nature. For the experts in the field, educational research is equivalent to scientific research applied to education, and they even dare to include it in the norms of the scientific method in its most rigorous sense (see Figure 3).

Figure 3. Creation of pedagogical, academic and coexistence projects.



Source: Pedro A. Suárez Ruiz, 2002

Conclusions

It is inferred, from the perspective exposed in the article, that educational research and the nuclei of pedagogical knowledge in the educational context have the purpose of discovering the laws that govern educational facts in order to be able to formulate theories that guide and control educational practice. All this through the use of instruments and techniques proper to quantitative research. Therefore, in the planning and structuring of the pedagogical, academic and coexistence projects of an educational institution, characteristics of the technological, practical and critical aspects must be included, as shown in Figure 3.

It is evident that educational research and the nuclei of pedagogical knowledge, more than providing explanations of a causal nature, seek to interpret and understand human behavior based on the meanings and intentions of the actors that intervene in the educational setting. The supporters of this orientation focus on the description and understanding of what is unique and particular to the subject, rather than on what can be generalized; they strategically seek to develop knowledge through ideas and graphics, but accepting that reality is multiple, holistic and dynamic. They seek to reach objectivity in the realm of meanings, using as evidence the intersubjective commitment in the educational context (socio-critical paradigm).

The socio-critical paradigm originates in response to the previous ones, since it accuses positivism of being reductionist and the interpretative current of being conservative.

The foundations of this paradigm are found in the Frankfurt School, in neo-Marxism, in the works of Freire (1982), Carr and Kemmis, and in Habermas's critical social theory. In the methodological and conceptual aspects, they are similar to the interpretative paradigm, but they add ideology explicitly and critical self-reflection in the processes of knowledge, with the aim of modifying the structure of social relations, to describe and understand them.

The followers of this school of research intend to know and understand reality as praxis; to unite theory and practice; to involve the educator in the teaching-learning process through self-reflection and to direct knowledge to emancipate in man (Popkewitz, 1988). In that order of ideas, we see that this position denies the hypothetical neutrality of science. Currently, this trend has a very strong impact on various educational spaces, for example, in the study of educational administration, the curriculum, and teacher training, among others.

Currently, and in spite of our limitations, we must break with the quasi-isolation in which the reality of closed curricula has submerged us. We cannot and should not remain behind in the interpretation of vast and complex educational phenomena that are growing every day with the passage of globalization, and where it does not seem that easy paths can be found to resolve them. The challenge is enormous and so are the limitations, but with certainty, conviction and constancy in our commitment and in educational research as a mediator in the nuclei of pedagogical knowledge, the project will become a dynamic reality in permanent change, where times, spaces and environments of knowledge are modified.

We are convinced that there must be curricula and programs that respond to these transforming demands, but we are also convinced that they can only be diagnosed through educational research. Hence the current trend to make curricula more flexible and to be always open to all that can enrich and modernize them in order to fulfill the goals and objectives established in the field of ideas.

Any initiative in this regard necessarily implies the application of educational research that establishes changes in the curricular structure of the institutions; an exaggerated, closed and literal interpretation is observed in the face of the flexibility of the curricula and the reasonable psycho-pedagogical and social reality of student university practices, either because of fear of the supervisory and/or evaluative body, or because of a lack of decision to seek true spaces that generate the opportunity to investigate and act within that investigation.

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