

  <https://doi.org/10.56238/alookdevelopv1-083>

Euclides Ferreira da Silva

Graduated in mathematics foundation UNITINS
Post-graduation lato sensu (School evaluation in mathematics CESGRANRIO foundation)

Ângela Nascimento Ferreira

Graduated in pedagogy Educational Institute of Santa Catarina (IESC)
Post-graduation lato sensu Psychopedagogy and School Supervision (INSTITUTO DE EDUCAÇÃO SÉCULO XXI)

Jeruzalem Martins de Sá

Graduated in mathematics from the Federal University of Tocantins (UFT) in 2018
Post-graduation Lato sensu: In Mathematics Teaching (UFT in partnership with UAB).
Master's degree in Science and Mathematics Education from the Federal University of the South and Southeast of Pará (UNIVESSPA).

Gabriel Lima Gonsalves

Graduated in Mathematics from the State University of Pará (UEPA)
Lato Sensu Post-Graduation in Teaching for Professional and Technological Education EPT/IFES

Surama da Conceição Silva

Graduated in mathematics from the Federal University of Tocantins (UFT)

Maria Altair Ferreira da Silva

Postgraduate lato sensu in Inclusive Education and Libras (Faculty of Technology Team Darwim)

Davi Oliveira Lima

Graduated in mathematics from the Federal University of Tocantins (UFT)

ABSTRACT

This article discusses curriculum and teacher education, it originated from documental analysis in which we discuss several readings of authors who discuss the topic in question.

In this sense, the inadequate training of teachers is described, in which their formative learning is theory and what happens in practice is different from academic teaching. Therefore, we concluded that it is quite complex to make Curriculum changes in a specific subject without considering changes in the general curriculum of educational institutions.

Keywords: Teacher training, Apprenticeship, Curriculum.

1 INTRODUCTION

Considering that the prescribed curriculum is not the curriculum practiced in Educational Institutions and, since the vast majority of teachers are not sufficiently prepared to exercise it efficiently. The exercise of the curriculum, as expected by the technical authorities, is dependent on the adequate training of teachers. Studying school practices, analyzing them, and reorienting them is essential for changes in the curriculum.

The contents of Mathematics in the curriculum, especially Elementary Education, have been a field of study and research in recent years. On the other hand, the redesign will require the effective preparation of teachers to execute the changes.

Proposing curricular change considering only social needs, without considering what happens in school practices or how teachers are prepared to exercise their craft becomes completely ineffective. In addition, the Educational Institution does not consider making changes in the Mathematics

curriculum without considering a general, profound, and significant change, that is, a new conception of the very substance of the school didactic process, the curriculum, as a whole.

The curriculum is The very foundation of any education system: changes in different aspects of the organization will be palliative measures if they are not accompanied by a curricular transformation. "Changing the curriculum", as Hilda Taba (1962) says "means in some way, changing the Institution" The modification of the curriculum is the most sensitive aspect of educational reform because it reflects attitudes and values. It is the point where traditionalists and progressives most openly clash with each other, as the curriculum is seen as a bulwark of tradition and a touchstone of change (Gass – 1972). Thus, we point out the need to monitor the school reality to achieve an integration between school practices, curriculum, and social needs.

The curriculum includes a total program of the Educational Institution, that is, the set of opportunities for experiences provided by the school given the growth of the student and his insertion in society. The type and quality of the experiences provided will favor the formation of a certain type of man (either passive, accommodated, selfish, competitive or committed, critical, supportive, fraternal) and, consequently, his form of insertion in society. Analyzing therefore the educational system in the school aspect, it is perceived the predominance of two models of education: the traditional type of academic and technological scientific or technicist (strongly encouraged by the current system) next to yearnings, searches, and experiences, on the part of small numbers of Educational Institutions, of an education that can be called "liberating" (cf. Medellín).

To change the Educational Institution, to enable the training of new teachers It is necessary to overcome educational practices proper to the predominant educational models, by implementing curricula that favor a liberating education.

In the traditional model of academics type, the curriculum is centered on the subject to be transmitted. It is organized with the function of transmitting the accumulated culture and of introducing the student to society as it is. The teacher is the intermediary between the accumulated culture and the student. The important thing is the contents. It is necessary to minister the intelligence the nourishment of the ideas and knowledge, acquired over time by the effort of eminent men and stored in books. In the current situation of many institutions, this means transmitting what is in books, texts that, for the most part, in addition to presenting contents deeply marked by the dominant ideology, are of poor quality, from the scientific point of view. In this model, who guarantees the efficiency of school work is the teacher. He acts, decides, and sets the pace of learning. Must possess extensive knowledge of the subject and the ability to convey it well. As for the learner, he must be a mere receiver, limit himself to listening, copying, to recording from memory dogmatic truths, discovered by others more intelligent than him and apply them in exercises and problems separate from life, and then return them in the tests,

in the examinations, to obtain a greater number of points and higher grades education needs change, as well Puts, (DAYS, 2012, p. 10)

[...] Change that is expected must begin first by teachers, who are not yet prepared to rebuild their pedagogical practices, because in the act of evaluating the performance of students enjoys only rules that the school establishes, such as: through grades, tests, and tasks that determine the number that the student took in the execution of their activities. (DAYS, 2012, p. 10)

A curriculum based on the technological-scientific model assumes the ideology of technological scientism, and spreads the myths of (neutrality of Science) and (technification) that lead to depoliticization and passivity of the majority, serving to reinforce socioeconomic and cultural structures of oppression.

The curriculum that favors a liberating education is centered on the people in relationships. Its efficiency is guaranteed by the active participation of the student.

Students are challenged, through concrete existential situations, to put themselves in a permanently reflective position. It is the Pedagogy of Discovery: the teacher helps the students in the adventure of knowing. The reflection, however, should be the student's own. It is an inalienable right; no one can think for another, unlike this:

[...] the teaching-learning process is reduced to a mechanical activity of repetition of answers and structures that are often empty of meaning for both the teacher and the student. There is no reflection, no dialogue. There is no knowledge building and no learning. (FERREIRA, 2021, p.108)

The student is placed through the content of the matter in contact with reality and helped to perceive it in its relations with human rights, with equality among men, and with justice in the world. The learning situations are such that they stimulate the creative potential of each student, enabling them techniques and instruments that allow them the freedom of creation, communication, socialization, and assimilation of knowledge.

The student is active and the first agent in cooperation with the other students. The relationships that are established are horizontal. The educator-learner contradiction is overcome by dialogue. Educator and educating true subjects cognoscente, mediated by the knowable object (cf. Paulo Freire 1970).

On the part of the teacher and the other adults involved in the process, in the sense of abandoning attitudes of domination, imposition, or authoritarianism, to replace them with those of greater receptivity, interest, criticality, humility, and trust in the other.

2 CURRICULUM AND SCHOOL PRACTICES

We begin by considering the different conceptions of curriculum, according to different authors such as Saviani (2007, p. 01), who "[...] identifies the theory-practice relationship as the fundamental problem from which the two great pedagogical currents derive that lead to a dilemma and that feed the polemical character of pedagogy." For (EYNG, 2007, p.09) curriculum [...] "It is the main strategy for defining and articulating policies, competencies, actions and roles developed within the State, the school and the classroom."

In the understanding of Melo (2014, p. 02) "The curriculum is centered on knowledge, but on fallible knowledge, which must be submitted to problematization". Let's see that there are several pedagogies influenced by different ideologies that point out the most relevant aspects to be studied as, what contents should be addressed. What learning experiences should be prioritized? Ways of drawing up teaching plans in schools and school systems? What goals are to be targeted? Evaluation processes for reformulation of practice and content

It is recognized that all curricular development configures a practice through multiple processes and in this exercise, as it tells us Sacristan (2001) the professor is a primordial element.

We will start from the assumption pointed out by Moreira and Candau (2007) as (curricula are the school experiences that develop around knowledge amid social relations, which contribute to the construction of students' identities).

It is in this perspective that we chose to relate curriculum, teacher training, and school practices.

In principle, it is necessary to consider who is this teacher who exercises the development of the curriculum. Analyze, and study their cultural experiences, their life history, and their professional training. One has to consider the ethnic, social class, and cultural diversity that will influence the practices of this professional.

The point of this adversity shows us the importance of the continuity of the work of professional training in schools, which should be integrated with the University and always without losing sight of the curricular proposals of the education system.

The school practices exercised in the Institutions will be the starting point for the continuing education of Mathematics teachers aiming at the desired curricular changes.

3 REFLECTIONS BETWEEN CURRICULA AND TRAINING POLICIES

In the Brazilian courses of formation of Mathematics, teachers have not taken into account what happens in schools and what practices have developed teachers and their motivations and possibilities.

These courses continue to be structured through the juxtaposition of modules on "mathematical content" and modules on "pedagogy" that, although in general no longer separated into different academic years, are still designed and executed without articulation. The fact that similar issues – which reveal scenarios of rupture between how mathematics teachers have been trained and the training effectively necessary for the teaching of the discipline in basic school – emerge in cultural contexts and at different times indicates the complexity of the theme. Although the idea that "to be a good mathematics teacher it is enough to know a lot of mathematics" is a recurrent common sense (and even determines some teacher training policies), research in mathematics education and, above all, the results of mathematics learning in Brazilian basic education demonstrate that it is not "that simple". (GIRALDO, 2018, p. 38)

To many of the training courses take place in university-level courses of private schools with curricula centered on theories of Education and deepening of the specific content of Mathematics and planning, almost nothing focused on the specific didactics of the subject, which leads to the improvement of school practice; theoretical classes without specific training, reflections without experiments, observations or experiences of own situations.

Researchers such as Gauthier, Tardif, and Mizubame, indicate to break the distance between theory and practice leads the teacher to create a repertoire of knowledge that includes the knowledge of the mathematical content, the pedagogical knowledge of this content, the curricular knowledge, and the knowledge of the educational sciences.

A study conducted by Gatti and Nunes (2009) identified that most teacher training courses to work in the first grades of elementary school occur in private, community, confessional, or philanthropic institutions. In these courses, priority is given to the Theoretical Foundations of Education and General Didactics. As for specific Didactics, in the case of Mathematics, only twenty percent are dedicated to this content, and to the specific study of the content itself to be taught only seven percent. In this study, it was not yet observed that research practices or studies on didactic practices proper and appropriate to the first grades of education were taking place.

For all this, it can be concluded that teachers who teach Mathematics, especially in the initial grades of education, do not have the opportunity for training that gives them conditions to act effectively in the face of the current demands of society. As well put (TURRIONI, 2004, p.43)

Initial training should be seen as the first phase of a long process of professional development, in which reflection, cooperation, and solidarity are factors present in the life of the teacher.

It better teaches the teacher who has a global proposal about the life of which he has a long-meditated conviction. Not only the teacher who has the most logical theory but the one who is convinced of what he says and testifies with life to what he says.

From Student leaders point out that it wasn't the teachers (and there were so many) but repressive, police, and omniscient teachers who taught me the most. But the teachers, who gradually introduced me to the plans, projects, and secrets of their existential struggles. It was not those who

praised me for no reason or those who excused and exonerated me too much, but those who were true even if the truth was hard and I had not understood it sufficiently. The arrogant teachers who needed the lie and the basophy taught me the hilarious ridicule that caused pity. My learning was much deeper and more fruitful with those who not only revealed a broader horizon of the bibliography on the subject but also knew how to scale the steps necessary for the research of the theme. Steps that, most of the time, they had already gone through. Teachers who forced us to start from our experiences, and intuitions, to order them, to confront them with the intuitions of colleagues and books, and to express them in an orderly manner, who did not force them (as some other teachers did) to bury, to forget, to abandon our intuitions under any pretext and to then copy, memorize only the external framework of some of the others' intuitions, without taking into account the time, the place, the conjuncture in which they were gestated. The teachers who knew best how to teach (often fumbling in technical didactic issues) demanded a sympathetic confrontation with the eagerness of all men from our situation. A situation not only psychological but existential, in the concrete social context that we inhabited.

Trying to remember the strategies used by these teachers to teach us, I rediscover an ever-present method: that of seeing, judging, and acting. I remember that the best learning experiences followed these three steps. In our impatience, we always tried to jump to the last stage again, without, however, making them isolated and watertight periods. Teachers, in short, who understood our failures and successes, without, however, mischaracterizing them as failures and successes. "

As a conclusion we can point out four major methodological indications: the) We must go beyond the totality Hindu-European ontological and Greek of Western and Christian civilization. b) We need to analytically enable the understanding of the Latin American reality of a capitalist, peripheral, and dependent society crying out for liberation. c) We must situate reality and history not as a fatalistic and immovable predetermination or as the capricious fruit of arbitrary subjectivity, but as enabling hope and affective solidarity participation. d) We must allow a man to be seen neither as an individual-monad nor as a mass diluted in the whole of the class, nation, or group; nor dualistically divided into body and soul, intellect and hand, reflection, and action, but as a hope that is one, solidary, historically and transcendently. e) We must allow ourselves to see education and the pedagogical act not as a legitimizing reproduction of social relations, especially of injustice and exploitation, but as a critical invention (therefore education is the place of conflict and the need to overcome it) of the liberation of a people in the construction of a history of men.

As for the choice of the specific curricular contents of Mathematics, especially in the initial grades, they can be quite questioned as to the use in the social practice of the students. And in this regard, Paulo Freire asks: "For whom or against whom we are acting?"

Students often declare that the mass school experience is part of a profoundly artificial educational process, invented and devoid of a sense of reality. Therefore, many students adopt the attitude of passive resistance, conforming to the experiences of their acculturation and waiting for the number of years necessary to receive the infamous passport to employment. Thus, schooling is just another of the questionable social rituals. Many students achieve high grades during their stay at the Institution, yet they demonstrate an incredible ignorance of the basic issues and problems facing humanity. When the student is submitted to learning activities that they cannot relate to their own life, the information that they acquire and that hardly becomes knowledge, because for this it is indispensable to work intensely with the information, through the use of their own and more complex mental processes, which go beyond the simple use of memory) do not encourage them to continue learning.

The Educational Institution must understand the fact that learning means a highly personal process that has its center in the dynamics of those who learn, a sphere where the most incredible and unexpected relationships are established, conditions that are indispensable for the emergence of "insights" that offer so much satisfaction to the student, although they are of sporadic occurrence in the schooling process.

According to current trends, there are major topics that must be addressed in the basic education of mathematics: numbers and calculations, measures, geometry, statistics, probability, algebra, and functions. There is consensus that the development of numerical, statistical and probabilistic, algebraic, and functional thinking should be present from the first early years.

In the Literacy Cycle, in this way, any idea of fragmentation of the contents of Mathematics is deconstructed, and reinforces the integration between the various fields; thus indicating that algebraic thought develops in all of them, but its characteristics, the way a thought is structured, is what differentiates it from the work focused only on the numerical field. (LIMA, 2018, p. 56)

Cultural diversity in the design and execution of curricula cannot yet be disregarded. Both in the training of teachers and in the teaching of institutions that always have their multicultural perspective.

It is not the legal provisions that most hinder the curricular transformation, but the pressures both internal (among others, those resulting from the attachment to what has always been done, the lack of clarity on the part of the school community with the philosophy of the school, the inadequate training of teachers), as well as external (expectations of society, requirements of the vestibular, arbitrary demands of the organs of the system, the presence of institutions that remain in a traditional or technicist scheme, ideological influences – we cannot forget the political function of education – and others that oppose change).

4 FINAL CONSIDERATIONS

The study done on Curriculum and Mathematics Education leads us to conclude that it is quite complex to make Curricular modifications in a specific subject without considering changes in the general curriculum of the Institution.

It was also considered that the methodological posture in the subject Mathematics in a proposal of change for new times does not differ also in the posture of the teacher before the other subjects, since one thinks of a teacher advisor, questioner, conductor of the student's thought, he yes, true thinker and advisor of his learning process.

One of the most relevant points is to bring the student closer to the problems of his time and to reflect on his own experiences, seeking to involve him in transformative experiences of his own life, of his community, and finally of his country.

It was very clear that for such a change it is necessary for a new teacher, himself transforming his life and his professional experience. You don't do that in isolation but in cooperation with his co-workers, guided by the resources made available by the School and the Education System in collaboration with the University.

REFERENCES

Carvalho, r.f.zeraik, s. M. Collaborative practices in the teaching of mathematics: a look carvalho, r.f.zeraik, s. M. Práticas colaborativas no ensino da matemática: um olhar para o uso da tecnologia digital. In: simpósio de grupos colaborativos e de aprendizagem de professores que ensinam matemática. Sben. S.p, 2015

Cyrino, m.c.c.t. formação de professores que ensinam matemática em comunidades de prática. In simpósio de grupos colaborativos e de aprendizagem de professores que ensinam matemática. Sben. S.p, 2015

Dias, j.b. pacto nacional para alfabetização em idade certa (pnaic) e os jogos: um caminho divertido para alfabetização matemática. In: simpósio de grupos colaborativos e de aprendizagem de professores que ensinam matemática. Sben. S.p, 2015

Fávero, maria leonida. Elementos para encaminhamento de uma transformação curricular, revista de educação aec, número 12, 1983

Freire, paulo. Educação como prática da liberdade, sexta ed. Rio de janeiro, paz e terra, 1974

Freire, paulo. Educação e mudança. Rio de janeiro, paz e terra, 1979

Gandin, danilo. Elementos para estabelecer uma metodologia de ação transformadora, revista de educação aec, número 12, 1973

Kelly, albert vitor. O currículo teoria e prática, harper e row do brasil, 1981

Manrique, a.i. desafios para educação inclusiva; pensando a formação de professores sobre os processos de domínio da matemática nas séries iniciais do ensino básico. In: simpósio de grupos colaborativos e de aprendizagem de professores que ensinam matemática. Sben. S.p, 2015

Nildecoff, maria teresa. A escola e a compreensão da realidade, quinta ed, brasiliense, são paulo, 1979

Taba, hilda. Elaboración del currículo, ediciones troquedo s. A. Buenos aires, 1974

Toledo, s.e.r.g. o projeto brincadeiras. In. Simpósio de grupos colaborativos e de aprendizagem de professores que ensinam matemática. Sben. S.p, 2015

Tramm, i.v. grupo de estudos e pesquisas em foco: práticas e resultados. In. Simpósio de grupos colaborativos e de aprendizagem de professores que ensinam matemática. Sben. S.p, 2015

Turrioni, ana maria silveira. O laboratório de educação matemática na formação inicial de professores. 2004.

Dias, carliane mendes et al. As práticas avaliativas e suas implicações para o desenvolvimento cognitivo do educando. 2012.

Ferreira, maria aparecida gomes. Aluno domesticado vs aluno reflexivo a visão do licenciando sobre o papel do aluno em sua futura prática pedagógica. Revista linguagem & ensino, v. 4, n. 2, p. 107-122, 2001.

Saviani, dermeval. Pedagogia: o espaço da educação na universidade. Cadernos de pesquisa, v. 37, n. 130, p. 99-134, 2007.

Lima, José Roberto de Campos et al. Pensamento algébrico no currículo do ciclo de alfabetização: estudo comparativo de duas propostas. 2018.

Eyng, Ana Maria. Currículo escolar. Editora IbpeX, 2007.

De Mello, Guiomar Namó. Currículo da educação básica no Brasil: concepções e políticas. 2014.